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SECONDARY NON-UNIVERSITY EDUCATION

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Alberta System of Post Secondary Non Uni
versity Education - Master Plan Nu 2



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MASTER PLAN NUMBER ONE

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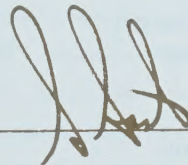
The task of preparing a Master Plan for Alberta post-secondary non-university education was assigned to the Alberta Colleges Commission in recognition of the need for a concerted plan of action to promote the orderly growth of the system and in recognition of the need to explore alternatives for the coordination and governance of the system.

The plan was developed to complement the work of the Commission on Educational Planning by reviewing problems and issues specifically relative to the non-university system. Although data were exchanged throughout both planning endeavours, each report was prepared independently of the other. Thus, while there are many areas of agreement between the two reports, there also are some areas of difference.

While the Master Plan is critical of some areas of current operation, it is at the same time constructive in that its recommendations are addressed to resolving identified issues and problems. Its recommendations are directed not only to government but to the specific agency, institution, or group which might appropriately take action.

The report is being distributed for discussion, debate and reaction. I have asked the Alberta Colleges Commission to solicit reactions and to submit these reactions to government through the Department of Advanced Education.

I would urge that all who are in any way involved with post-secondary non-university education read, study, and react to Master Plan #1.

A handwritten signature in dark ink, appearing to read 'J. L. Foster', is written over a horizontal line.

James L. Foster,
Minister of Advanced Education.

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ACKNOWLEDGEMENTS

The writer wishes to express his sincere thanks to the many people whose energies and work were combined to produce this master plan. As in most published documents, the people whose cooperation was most often sought and freely given are so many that a listing of them by name is impossible.

The students, staff, and administrators of all of the institutions and subsystems considered in this plan deserve first credit for their excellent cooperation in supplying information to the researchers listed in this work.

Thanks are also extended to the Steering Committee members for their advice during the initial stages of the project, and to the Futures Committee members for their reactions to proposals for coordination and governance.

Special thanks are extended to Neil Clarke and Ray Fast for their assistance in structuring the planning project, to Nick Chamchuk for his assistance in data collection and analysis, and to Joe Batty, Dan Cornish, and Milt Fenske for their cooperation in undertaking specific in-house studies for the project.

Special thanks are also extended to Henry Kolesar for his support, advice, and encouragement throughout the project and to Commission members for their assistance and direction.

Final thanks are extended to Joyce Bykewich for her cheerful enthusiasm in deciphering and typing the manuscript.

In October, 1970, the Alberta Colleges Commission established a committee to design a planning project which had as its objective the development of an educational master plan for the Alberta college system.

The master plan which this committee envisioned was to be open-ended in that it would encourage the development of new programs to meet emerging needs. The focus of the master plan was intended to be on identification of needs, programs, and services, and on the coordination of programs and services among the six public colleges in the system.

In February, 1971, the project was discussed with the Minister of Education who requested that the project be expanded to take into account all publicly supported post-secondary non-university and continuing educational services in the province.

An expanded project plan was then developed and submitted to Cabinet for approval. Cabinet requested that the Commission "... proceed immediately with the project to propose alternative proposals for Cabinet consideration regarding system-wide coordination and master planning of the non-university post-secondary education system in Alberta."

terms of reference

In addition to the general terms of reference provided by Cabinet, the following general purposes for the project were identified:

- ☐ To describe an organized system for post-secondary non-university education.
- ☐ To serve as a vehicle for further planning and establishing priorities.
- ☐ To facilitate coordination among institutions comprising the system.
- ☐ To serve as an effective public relations instrument.
- ☐ To provide a means for removing post-secondary development from purely political considerations and local pressures.

These purposes and terms of reference were approved by the Alberta Colleges Commission and by an Interdepartmental Steering Committee comprised of representatives appointed by Ministers of government departments involved in the delivery of post-secondary educational services.

format of the report

The report lacks the usual scholarly footnotes and bibliographic references. Only the specific Master Planning Monographs and papers which contain basic information are identified for each section of the report. Additional useful references are provided on page 117 under a section entitled "Selected References." This section does not contain a listing of all references consulted but rather provides a listing of those references which were found to be supportive of the directions suggested in the report.

methodology

The initial procedure selected for development of a master plan was to use committees and task forces to develop reports and recommendations. These committees were to receive formally commissioned research reports as information for planning.

However, the limited time frame adopted for the project made it impossible to use committees in the manner initially proposed. Commissioned reports became available in May, June, and July, 1972. The final planning report was due in September, 1972. Thus only limited use was made of two committees. An Interdepartmental Steering Committee assisted in formulating the terms of reference and in structuring the project. A Futures Committee reviewed proposals for coordination of the system.

The recommendations contained herein were developed by the writer in consultation with a variety of people ranging from heads of institutions through to faculty members, students, and department and commission staff. However, the recommendations should not be construed as representing a consensus of opinion among those consulted.

disposition of the report

Since the direct involvement of institutions in preparing the report could not be secured as was initially planned, the report does not necessarily have the approval of those concerned. If

recommendations are to be implemented successfully, it is necessary to secure additional input and discussion from subsystems, institutions and individuals who will be involved in implementing the recommendations.

It is recommended that:

- (a) The report be circulated to all interested parties.
- (b) Meetings be arranged to solicit reactions to the report and to its recommendations.
- (c) Following such meetings, the report and specific recommendations be approved and adopted for implementation.

reports generated

Research on a wide range of issues relative to the post-secondary sector of education was conducted through contractual agreements with investigators and through in-house studies by Commission staff members. Research findings and proposed solutions to problems were either published in monograph form or made available as occasional papers to all interested parties.

This procedure was followed so that the information collected and ideas generated could be used by any interested institution, agency, department, or planning authority. In this way the planning project continuously contributed information and ideas to the on-going operational and planning activities of the post-secondary educational sector. Although this procedure tended to render some of the recommendations

contained in this report as seemingly redundant since action has already been taken on a number of the issues raised, this was not viewed as a major problem. The total planning project was premised on the belief that system planning must be both a continuous and a cyclical activity. Planning begins with the present and moves out into the future by providing for a smooth transition between “what is” and “what might be.” At the same time planning is self correcting in that its continuing activities provide additional information and insight so that gross errors can be avoided.

Thus the planning project was designed so that action could be taken to direct current activities in such a manner that adoption of many of the recommendations contained in this report would not require an abrupt change in direction.

The following monographs and papers were generated and distributed during the planning project:

monographs

MASTER PLANNING MONOGRAPH #1. MAY, 1971.

The Planning Project: Developing a Master Plan for Alberta Post-Secondary Non-University and Continuing Education.

BOSETTI

MASTER PLANNING MONOGRAPH #2. MAY, 1971.

Alternative Futures: Alternative Patterns of Governance for the Alberta Post-Secondary Educational System.

THIEMANN

MASTER PLANNING MONOGRAPH #3. MAY, 1971.

Programs and Services Inventory: A Study of Non-University Post-Secondary and Continuing Education Services.

FISHER

MASTER PLANNING MONOGRAPH #4. JULY, 1971.

Enrolment Potential: Population Analyses and Projections for Alberta Post-Secondary Education.

CLARKE

MASTER PLANNING MONOGRAPH #5. OCTOBER, 1971.

Alternative Futures: A Rationale for Organization and its Application to Existing and Proposed Structures for Advanced Education.

BOSETTI

MASTER PLANNING MONOGRAPH #6. MAY, 1972.

Population Analyses: Alberta and Regional Population Parameters for Educational Projection and Planning.

CHAMCHUK

MASTER PLANNING MONOGRAPH #7. MAY, 1972.

Student Needs and Motivations: A Detailed Study of the Needs and Motivations of Students Currently Enrolled in Sixteen Educational Institutions in Alberta.

McLEISH

MASTER PLANNING MONOGRAPH #8. JUNE, 1972.

Resource Allocations: A Cost Analysis of Alberta Public Colleges.

CORNISH,

BATTY

MASTER PLANNING MONOGRAPH #9. AUGUST, 1972.

Capital Resources: A Survey of Existing Capital Facilities in Alberta Post-Secondary Non-University Institutions.

CORNISH,

FENSKE

papers

BATTY, J. F.

- "Financing the Colleges—Long Term Outlook," March, 1972.
- "Financing the College System, 1972-73," March, 1972.

BOSETTI, R. A.

- "Advanced Education in the 70's," January, 1972.
- "Alternatives for Institutional Governance," April, 1972.
- "An Operating Grant Formula: A Proposal for Discussion," July, 1970.
- "Colleges and Library Networks," May, 1971.
- "Community Involvement in Public Colleges," July, 1970.
- "Current Issues in the Community College," September, 1971.
- "Financing Post-Secondary Education in the Province of Alberta," April, 1971.
- "Interim Report: A Master Plan for Post-Secondary Non-University Education in Alberta," April, 1972.
- "Operations Data," January, 1971.
- "The Eastern Alberta College Region: A Summary Statement of Population, Programs, and Services," July, 1971.
- "The Peace River Region: An Analysis of Population Relative to the Provision of Post-Secondary Educational Services," June, 1972.
- "The Western Alberta Region (Hypothetical)," August, 1971.

CHAMCHUK, N. J.

- "A Brief Overview of Educational Opportunities in Alberta," November, 1971.
- "Conflict in College Level Administration: An Analytical Review of Abstractions," February, 1972.
- "Manpower Planning," June, 1972.
- "Organizational Development Alternatives," November, 1971.
- "Participation Rates in Alberta Universities," January, 1972.
- "Recruitment of Voluntary Contributions," March, 1972.
- "Regional Participation in Post-Secondary Education in Alberta, Fall, 1971," March, 1972.
- "The Lloydminster-Vermilion-North Battleford College Region," October, 1971.

CLARKE, N. W. J.

- "Problems of Alberta College Students as Perceived by Students," May, 1971. (Research Study #12)
- "Projections of Manpower Requirements and Implications for Their Use in Non-University Post-Secondary Educational Institutions," August, 1971.

CORNISH, D. J.

- "Faculty Workloads: A Critical Examination," March, 1972.
- "Report on Course Costs and Faculty Workloads in Red Deer College," April, 1972.

FAST, R. G.

- "A Report Recommending the Transfer of All Diploma Nursing and Allied Health Programs to the Alberta College System," September, 1971.
- "The Career Transfer Dilemma in the Alberta College System," May, 1971.
- "Community Service Programs in Alberta's Public Colleges: Recommendations for Their Support," October, 1971.
- "The Alberta College System: Yesterday-Today-Tomorrow," February, 1971.

FENSKE, M. R.

- "Equating Construction Costs Over Time and Location," June, 1972.
- "Lease Space-Science Building-Lethbridge Community College," March, 1972.
- "New Construction-Leasing-Purchase of Existing Facilities," June, 1972.

KOLESAR, H.

- "College-Government Relations in Canada," June, 1972.
- "College Governance: Implications of the Commission System," May, 1971.
- "The Alberta College System: A Summary Description of Operations," January, 1971.

STAPLES, B.

- "Master Planning Project Submission on Community Services and Continuing Education," December, 1971.

PLANNING PROJECT REFERENCES FOR CHAPTER 1

monographs

- BOSETTI, R. A. *The Planning Project: Developing a Master Plan for Alberta Post-Secondary Non-University and Continuing Education. Master Planning Monograph #1.* EDMONTON: ALBERTA COLLEGES COMMISSION, MAY, 1971.

SUMMARY IMPLICATIONS OF MASTER PLAN

Master Plan Phase 1 addresses a number of critical issues and poses recommendations designed to integrate and extend a diverse system of post-secondary non-university education for the Province of Alberta.

In summary, the recommendations would:

1. Establish an integrated system of advanced education coordinated by a single planning-review agency of government.
2. Maintain a flexible and diverse system of advanced education coordinated and governed by the people of the Province rather than by servants of the government.
3. Determine the role and service parameters of each post-secondary non-university institution in a manner which would preserve diversity of services to meet diverse needs but which would at the same time achieve greater efficiency and effectiveness in the provision of educational services to the Alberta population.
4. Shift the focus of advanced education from the teaching to the learning process and remove the traditional constraints of time and institution as prerequisites for credentials.
5. Encourage the development of new services designed to meet the needs of those traditionally excluded from advanced education by virtue of age, sex, geographic location, or social or economic disadvantage.
6. Encourage the use of student finance as a means for equalizing educational opportunity.
7. Encourage the development of programs in the humanities and arts, social sciences, environment and ecology, health and social services, and recreation and leisure which deal with and enhance the quality of life.
8. Encourage the maintenance of institutional flexibility to meet client needs and to meet existing and emerging manpower needs through the development of appropriate vocational programs.
9. Establish the public colleges as comprehensive institutions responsible for developing general education, university transfer, upgrading, and paraprofessional programs.
10. Establish the technical institutes as adaptive institutions providing trade, vocational, and paraprofessional programs in the engineering-related technologies with exclusive responsibility for specialized vocational-technology programs beyond the second year.
11. Establish Olds Agricultural and Vocational College as a two-year agricultural college with major responsibility for the second year of agricultural programs. The college would offer programs in technology, marketing and management suited to the agriculture industry.
12. Establish the Alberta Vocational Training Centre at Fort McMurray as a vocational-technical college specializing in mining and oil extraction technologies and in native education.

13. Incorporate the Alberta Vocational Training Centres at Calgary and Edmonton into the community colleges in those cities.
14. Establish the Forest Technology School at Hinton as a satellite centre of Grant MacEwan College for college and university transfer programs and as a provincial field study centre for the application of techniques in resource management, reclamation science and related fields of study.
15. Establish Vermilion Agricultural and Vocational College as a satellite of Grant MacEwan College for providing college and university transfer programs. The College would also provide agricultural extension services, and first year programs in agriculture.
16. Establish Fairview Agricultural and Vocational College as a satellite of Grande Prairie College providing first year programs in the engineering-related technologies, first year programs in agriculture, college transfer programs, and agricultural extension services.
17. Establish the Alberta Petroleum Industry Training Center as a satellite of the Northern Alberta Institute of Technology providing specialized programs related to the needs of the petroleum industry.
18. Establish a provincial planning environment in which planning data are assembled and analyzed as bases for policy decisions.
19. Establish the data base for a system simulation model upon which to test the implications of proposed administrative and policy decisions.
20. Establish a monitoring system with which to determine the effects of policy decisions regarding accessibility of services, student finance, and institutional funding; and which would serve as a predictor of student flow to, within, and from the system of Advanced Education.

In considering the nature of educational services which might be required for the 70's, the following were among the basic issues and trends which were examined and viewed as basic directional forces:

Population Growth.

Age-Group Distribution of Population.

Provincial Participation in Post-Secondary Education.

Regional Participation in Post-Secondary Education.

Accessibility of Educational Opportunity.

Institutional Development.

The Roles of Subsystems and Institutions.

Accountability and the Quality of Education.

□ population growth

Analyses of the Alberta population indicated that the total population may be expected to increase by approximately two percent or 38,000 people annually.

The population is expected to continue to shift to large urban centers and to urban communities which serve as residential-service centers. By 1981 it is expected that over 80 percent of the population will be located in urban centers.

□ age-group distribution of population

While the total population is projected to grow at a two percent rate annually, a significant shift in age-group distribution will become evident. The 18-24 group, which presently forms 11.8 percent of the total population, is expected to form 13.1 percent of the population by 1981. Following the 1981 peak, the 18-24 group will diminish relative to the total population until 1991 when it is expected to reach a low point at 10.4 percent of the total population. The 25-39 age group, which presently forms 18.6 percent of the total population is also expected to increase as a proportion of the total population to form 20.9 percent by 1981.

Thus the age groups normally served by post-secondary institutions are projected to increase at a proportionately greater rate during the 1970's. The force of numbers will remain undiminished throughout the decade and will impose increasing demands upon the educational delivery system.

Table 1 provides a summary description of the Alberta population by selected age groups and sex from 1971 to 2001. It should also be noted that the projected populations may be underestimated. The Alberta Bureau of Statistics 1967-2001

Table 1 ALBERTA POPULATION BY SELECTED AGE GROUPS AND SEX 1971-2001

Age Group Name	1971 Population		1976 Population		1981 Population		1986 Population		1991 Population		1996 Population		2001 Population	
	Males	% of Total	Males	% of Total	Males	% of Total	Males	% of Total	Males	% of Total	Males	% of Total	Males	% of Total
0- 5 Early Childhood	199,702	12.4	237,465	13.3	279,545	14.1	316,395	14.4	335,734	13.8	353,775	13.2	387,268	13.2
6-17 Education	426,266	26.5	422,435	23.7	433,700	21.9	499,977	22.7	578,465	23.8	641,685	24.0	684,338	23.4
18-24 Higher Ed.-Work	189,114	11.8	231,002	13.0	259,369	13.1	244,195	11.1	252,971	10.4	298,347	11.2	346,530	11.8
25-39 Work-Cont. Ed.	298,362	18.6	342,169	19.2	413,737	20.9	494,744	22.4	542,422	22.3	556,500	20.8	578,927	19.8
40-59 Work-Cont. Ed.	326,660	20.3	354,576	20.0	374,272	18.9	396,761	18.0	440,680	18.1	511,319	19.2	601,846	20.6
60+ Work-Retire	168,256	10.5	192,200	10.8	220,212	11.1	252,530	11.5	284,392	11.7	309,727	11.6	328,815	11.2
TOTAL*	1,608,335	100.0	1,779,814	100.0	1,000,806	100.0	2,204,578	100.0	2,434,632	100.0	2,671,320	100.0	2,927,687	100.0

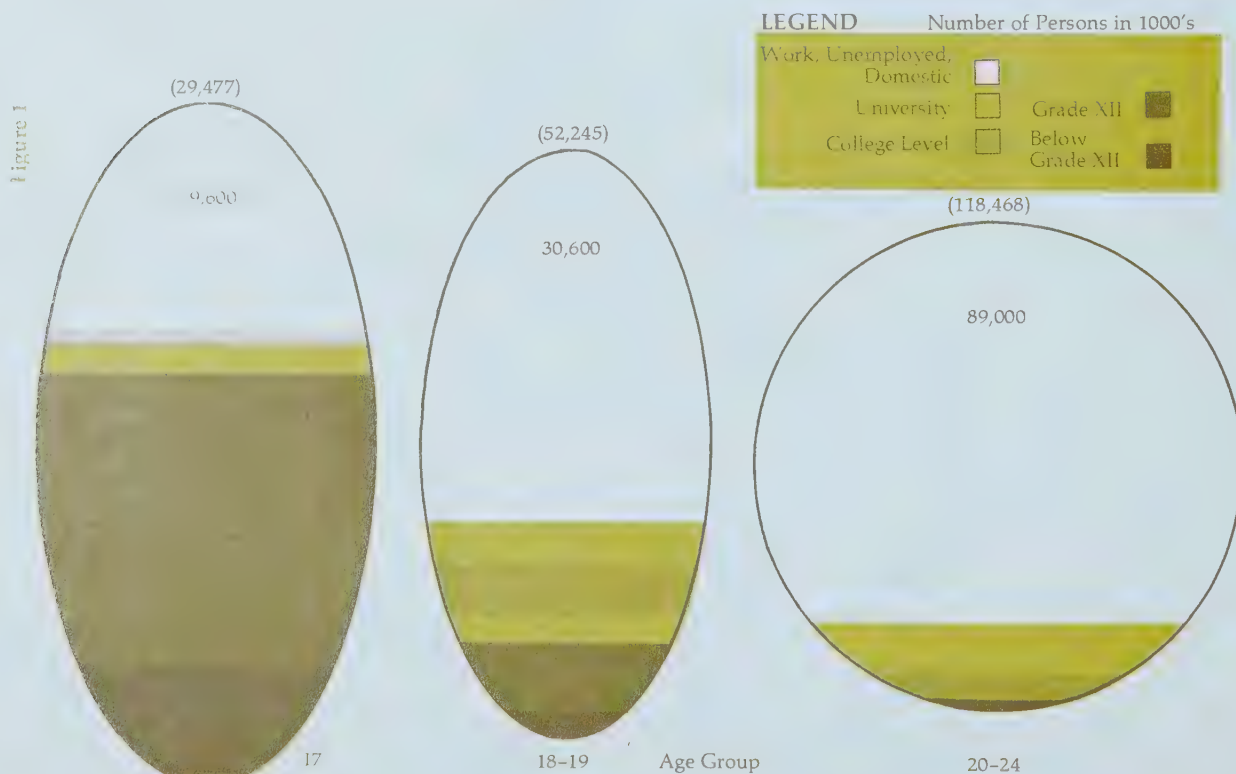
projection used as a basis for projections was found to be 19,539 below the actual 1971 population figure of 1,627,874 reported by the 1971 census.

□ provincial participation in post-secondary education

Participation in post-secondary education is closely related to the population and particularly to the 18-24 population since the majority of participants fall within this age group. During the 1969-70 term, the 18-24 age group formed 83.8 percent of the total college full-time enrolment and 76.8 percent of the total university full-time enrolment. The 25-39 age group formed only 12.0 percent of college enrolments and 18.1 percent of university enrolments. Similarly persons below age 18 and older than 39 accounted for only 4.2

percent of college enrolments and 5.1 percent of university enrolments.

A point-in-time analysis of participation relative to the total population and to population pools formed by specified age groups revealed both the degree of participation and possible gaps in services being provided. Figure 1, which follows, indicates that over half of the 18-19 year age group and over three-quarters of the 20-24 year age group was not involved in full-time formal educational programs. Similarly almost one-third of the 17 year-olds were not involved in formal education, and the 25-39 age group formed only a small part of the post-secondary enrolments. In essence, less than 24 percent of the 18-24 age group was enrolled full-time in post-secondary education.



If the 1969-70 participation pattern is repeated, it is estimated that in 1971-72 over 150,000 persons in the 18-24 age group will not be participating as full-time students in the post-secondary delivery system. If the 1969-70 pattern is repeated over subsequent years, this residual pool of people will increase to 179,000 by 1975-76 and to 207,000 by 1980-81.

These figures suggest that the number of full-time students enrolled in post-secondary institutions will increase if the 1969-70 rate of participation is maintained.

The foregoing data brought into focus several highly significant issues relative to the Alberta population and to the 18-24 age group:

1. The Alberta population is expected to grow at a rate of almost 2 percent per year.
2. The 18-24 age group from which the bulk of post-secondary enrolments is drawn is expected to increase until 1981 at a greater rate in proportion to the total population.
3. If the post-secondary education delivery system is to continue providing the same level of service as was provided in 1969-70, provision must be made to accommodate an increase in 18-24 year-old student full-time enrolments from 35,000 in 1970-71 to 43,000 in 1975-76 to 49,000 in 1980-81.
4. If the post-secondary delivery system is to maintain a non-participant point-in-time residual of 18-24 year-olds at 150,000, provision must be made for an additional increase in

full-time enrolments of 34,000 in 1975-76 and 57,000 in 1980-81.

□ regional participation in post-secondary education

Post-secondary education serves a number of purposes not the least of which is to make educational opportunity available at the lowest possible cost to government and to the individual student. Theoretically, post-secondary education serves as one of the means whereby individuals may achieve social and economic equality regardless of origin, geographic location, or socio-economic status. It is designed to distribute throughout society the skills and attitudes which contribute to economic growth and cultural development. In practice, however, post-secondary education does not appear to be available to all on an equal basis.

In order to determine the accessibility of educational services to the residents of the province, a review of enrolments and geographic origin of students by census division was conducted. Enrolments by census division and institutional type are summarized in Table 2.

Enrolment ratios were derived for each census division by calculating total full-time enrolments originating from each census division as a percent of the 18-24 population.

Provincially, the enrolment ratio was 19.34 percent, with 70 percent, 15 percent, 14 percent, and one percent in universities, technical

institutes, public colleges, and agricultural and vocational colleges respectively.

The range of enrolment ratios was from 23.75 percent in C.D. 6 (Calgary) to 8.72 percent in C.D. 12 (Fort McMurray). Only C.D.'s 2, 6, and 11 (Lethbridge, Calgary, and Edmonton) exceeded the provincial average, suggesting that the location of facilities may be a significant factor in utilization by residents.

Average provincial ratios for university enrolment was 13.46 percent. Three of the highest ratios were for Edmonton, Calgary, and Lethbridge, ranging from 18.67 percent to 14.32 percent. All others were less than 10 percent.

Average provincial ratios for public college enrolment were 2.84 percent. Among the highest ratios were Medicine Hat, 7.96 percent;

Lethbridge, 5.72 percent; Red Deer, 5.67 percent; Calgary, 4.35 percent; and Peace River (Grande Prairie), 2.98 percent. With the exception of Cardston, 4.95 percent (chiefly attending Lethbridge College), all other census divisions were found to have enrolment ratios below 2 percent. The low rate for Edmonton may be attributed to the recency of college development.

Enrolment ratios for agricultural-vocational colleges seem to be patterned on the extent to which agriculture is the predominant economic activity of a census division.

Enrolment ratio patterns for technical institutes appeared to be less location centered. Although the enrolment ratios of 3.52 percent for Calgary and 3.17 percent for Edmonton were among the highest, several other census divisions were found to have enrolment ratios within the same range.

Table 2

BY CENSUS DIVISION

Census Division*	Institution Type				Total
	Technical Institutes	Ag Voc Colleges	Public Colleges	Universities*	
1. Medicine Hat	101	11	398	413	923
2. Lethbridge	137	38	641	1,604	2,420
3. Cardston	47	8	198	349	602
4. Hanna	59	18	36	108	221
5. Drumheller	111	30	82	296	519
6. Calgary	1,755	94	2,167	7,812	11,828
7. Wainwright	145	34	58	298	535
8. Red Deer	224	43	607	676	1,550
9. Mountains	59	1	37	185	282
10. Camrose	271	62	77	844	1,254
11. Edmonton	2,041	44	590	12,023	14,698
12. Fort McMurray	139	43	34	377	593
13. Athabasca	186	22	33	353	594
14. Edson	48	6	15	154	223
15. Peace River	167	103	334	515	1,119
Sub-Total	5,490	557	5,307	26,007	37,358
Other Provinces	783	76	634	1,777	3,270
Other Countries	163	9	167	1,210	1,549
TOTAL	6,436	642	6,108	28,991	42,177

*C.D.'s have no names. The names are those of major centers within the divisions and have been added to assist interpretation.

*University enrolments are for the 1970-71 year. No appreciable changes in magnitude or pattern were expected for 1971-72.

Table 3

ENROLMENT RATIOS IN PUBLIC POST-SECONDARY EDUCATIONAL INSTITUTIONS IN ALBERTA, 1970-71 BY CENSUS DIVISION

Census Division	Alberta 18-24 for 1970*	Enrolment Ratio Full-Time Students	Proportion by Type of Institution (Percent)			
			Technical Institutes	Ag & Voc Colleges	Public Colleges	Univer- sities
1. Medicine Hat	5,000	18.46%	11	1	43	45
2. Lethbridge	11,200	21.61	6	2	26	66
3. Cardston	4,000	15.05	8	1	33	58
4. Hanna	1,800	12.28	27	8	16	49
5. Drumheller	4,300	12.07	21	6	16	57
6. Calgary	49,800	23.75	15	1	18	66
7. Wainwright	4,900	10.92	27	6	11	56
8. Red Deer	10,700	14.48	14	3	39	44
9. Mountains	2,100	13.42	21	0	13	66
10. Camrose	8,900	14.09	22	5	6	67
11. Edmonton	64,400	22.82	14	0	4	82
12. Fort McMurray	6,800	8.72	23	7	6	64
13. Athabasca	5,600	10.61	31	4	6	59
14. Edson	2,500	8.92	22	2	7	69
15. Peace River	11,200	9.99	15	9	30	46
Total	193,200					
Average		19.34	15	1	14	70

*Population aged 18-24 inclusive for 1970 calculated from Seastone, 1971.

Table 4

ENROLMENT RATIOS IN POST-SECONDARY INSTITUTIONS BY TYPE OF INSTITUTION

	Technical Institutes	Ag & Voc Colleges	Public Colleges	Universities
1. Medicine Hat	2.02	0.22	7.96*	8.26
2. Lethbridge	1.22	0.34	5.72*	14.32*
3. Cardston	1.18	0.20	4.95	8.72
4. Hanna	3.28	1.00	2.00	6.00
5. Drumheller	2.58	0.70	1.91	6.88
6. Calgary	3.52*	0.19*	4.35*	15.69*
7. Wainwright	2.96	0.69*	1.18	6.08
8. Red Deer	2.09	0.40	5.67*	6.32
9. Mountains	2.81	0.05	1.76	8.80
10. Camrose	3.04	0.70*	0.86	9.48
11. Edmonton	3.17*	0.07	0.91*	18.67*
12. Fort McMurray	2.04	0.63	0.50	5.19
13. Athabasca	3.32	0.39	0.59	6.30
14. Edson	1.92	0.24	0.60	6.16
15. Peace River	1.49	0.92*	2.98*	4.60
Average	2.84	0.28	2.74	13.46

*Institutional centers. Note: Inclusion of enrolments in private colleges, chiefly Camrose and Edmonton would likely have resulted in higher ratios for those C.D.'s.

Enrolment ratios for each census division and proportionate distributions by type of institution are reported in Table 3.

Enrolment ratios for each census division by type of institution are reported in Table 4.

The foregoing review led to the observation that proximity of educational services is a major determinant of accessibility. Where educational facilities have been established, a higher proportion of the residents enrolls as students. Where facilities are not locally available, much lower proportions of the residents participate in post-secondary education.

The extent to which adequacy of elementary and secondary education, economic status, and knowledge of vocational opportunities are other factors contributing to the diversity of enrolment ratios could not be determined from available information.

□ accessibility to educational opportunity

The attrition of enrolments in universities being experienced throughout Canada has been attributed to national economic instability and to the resultant reduction in job opportunities. Furthermore, the apparent lack of job opportunities for graduates coupled with the findings of some recent cost-benefit studies tends to support the growing contention that the expenditure of time and resources in acquiring an extensive post-secondary education may be a poor personal investment to the student.

In addition to these economic factors, there is also some evidence of rejection of middle class values and ideals, and of growing reactionary attitudes towards the apparent transience of everything associated with a super-industrial era. Facing an uncertain future, today's young adult may be unwilling to forego the present for an extended time period in order to gain paper credentials designed to fit him as a productive cog in a "dehumanizing industrial world."

While the above issues may be contributing factors to the apparent decline in university participation, they form only small aspects of a much larger issue — that of accessibility to post-secondary educational opportunity.

The student who goes through the process of deciding whether or not to participate in the educational services being offered must contend with many issues each of which may deny him accessibility. Initially, he must examine entrance requirements. If he is one of the 42,000 in the 18-24 age group who does not have the equivalent of grade 12, he may find it necessary to engage in a lengthy upgrading program. If he does have the necessary entrance requirements, he faces an extensive time commitment usually ranging from two to four years before he enters the labour force. He must also consider tuition fees; and if he must live away from home, travel and subsistence. Finally, he must correlate his own preferences and aptitudes with possible employment opportunities in order to choose a career in which there is some assurance of employment.

However, for the student who decides to attend a post-secondary institution, the problem of accessibility continues beyond his initial decision. Estimates of attrition in enrolments at the university level indicate that only between 67 percent and 78 percent of the original first-year cohort return for the third year. These figures do not necessarily take into account those students who register for the first year but do not attend and those who attend for only a few weeks before dropping out. Similar estimates of attrition for the non-university post-secondary sector suggest that students in these institutions fare no better. Cohort graduation figures for these institutions suggest that on the average only 43 percent of students who were initially enrolled complete a diploma program and only 62 percent complete a certificate program. For many students, the decision to engage in post-secondary education may end in disenchantment, drop-out, and failure. Another set of issues which determines accessibility to post-secondary education relates to the kinds of services currently being provided. A recent publication entitled *Report on Higher Education* suggests that students in the United States "... do not have a choice between institutions which offer different modes of learning, but between institutions which differ in the extent to which they conform to the model of the prestige university." If a similar statement can be made about Alberta post-secondary education, and if credence can be placed in reports that students are seeking personally significant

qualitative educational experiences different from those offered by post-secondary institutions, then the advisability of continuing to extend the traditional post-secondary pattern whereby all students are fitted into programs conceived and nurtured in the cloistered world of the academic is open to serious question.

institutional development

If man is viewed as having freedom of choice with regard to his selection of educational experiences, it seems reasonable to expect the educational delivery system to provide a variety of experiences from which he may choose.

But post-secondary institutions in this province and elsewhere on the continent are remarkably similar in that they are striving to perform the same generalized missions. If one adheres to the idea that pluralism in society is desirable, then an important function of post-secondary education is to offer alternative models of careers, roles, and instructional processes. Indeed, these alternatives should include not only those which fit individuals into conventional roles but also those which enable individuals to challenge and change society. Thus the comprehensive, all-purpose institution is only one of a kind required. The need for specialized services and for institutions providing alternative models of instruction, values, and attitudes is urgent if we aspire to developing and maintaining a pluralistic society.

Community colleges form the leading edge of efforts to extend educational opportunity beyond the elite to all citizens. They were designed to provide desirable alternatives to the traditional university pattern of education by developing new educational opportunities to suit the particular needs of their respective clienteles. But the pressures for conformity and status are taking their toll. Pressures from universities for uniform requirements for transfer tend to augment similarities between colleges and universities. The availability of highly qualified academic personnel as college instructors adds to the trend toward a conventional academic format. Community and faculty pressures for status encourage the development of traditional programs and the attraction of academically talented students. Community colleges have yet to assume the full burden of the difficult task of educating those who have experienced academic failure — those who may not be capable of more advanced “academic” work.

Community colleges must resist pressures for uniformity. They must expand opportunities for adults to increase their occupational skills, to begin an academic career, to enrich the quality of their lives, and to multiply their educational options and their chances to choose wisely from among them.

□ the roles of sub-systems and institutions

The Alberta post-secondary educational system has tended to operate in an uncoordinated manner with institutions and sub-systems proceeding

relatively independently of each other. While institutional and sub-system independence is necessary to promote flexibility in meeting educational needs, this independence must be extended only within the parameters of broad system policies. Lacking such parameters, independent institutions and sub-systems may tend to expend resources in their own maintenance and growth, and may increasingly resist change which threatens the sub-system or any of its members. Such a situation provides little assurance that the delivery system will fulfill existing or emerging needs.

Lack of coordination is evident in the manner in which responsibility for providing services has been allocated. In the past this has occurred largely by default. For example, the public colleges initially assumed responsibility for filling the accessibility gap between potential students and post-secondary education. Similarly the technical institutes initially grew to fulfill the need for job-specific technological training.

However, as these needs were being fulfilled by colleges and institutes, the universities began closing some of the existing gaps by reducing entrance requirements, by extending “mature student” privileges and by increasing the job specificity of some programs. It would appear that the newer institutions have fulfilled the role of catalyst to change and as a result now find themselves in the process of attempting to find new roles to fulfill. If the system is not coordinated, with provision being made for institutions to change roles and to meet new

needs, there is an inherent danger that resources will be expended in the maintenance of institutions which have outlived their usefulness to the people whom they were designed to serve.

Jurisdictional overlaps may also be viewed as being a result of lack of coordination. For example, public colleges have assumed, as a part of their role, responsibility for providing university transfer courses in areas which do not have ready access to universities. Universities have retained control not only of the content, instructional organization and duration of such courses but also of the extension of these services to other communities. Each college has been restricted to providing approved university transfer courses and programs to only the community in which the college is located.

The question of inter-institutional transferability poses yet another serious problem which may be resolved through coordination. At present, transfers to universities occur only by agreement. Considerable control over the sending institution is maintained by the receiving university. The non-university sector, on the other hand, has adopted a policy whereby transfer within the system may occur on the recommendation of the sending institution. This policy, which is proposed for adoption within the total post-secondary system, may serve as a much-needed model for transferability.

Many of the current problems facing the post-secondary educational system are related both to coordination and to role definition. A

decision relative to the development of a college in the Vermilion-Lloydminster area is in part dependent upon the role which such an institution may fulfill. The future utilization of the agricultural and vocational colleges at Olds, Vermilion and Fairview is similarly related to role definition. Current requests by the University of Calgary to introduce programs in dentistry and law may be related to the role which that university is expected to fulfill in relation to the total system. The future of Athabasca University today hangs in balance partly as a result of the decline in university enrolments, partly as a result of failure to identify a role for the institution, and partly as a result of a government decision to stabilize spending in education.

Resolution of such conflicts is no easy task. When institutions are created, there is usually basic agreement between society and the institution created about the roles to be pursued. In time, however, institutions may tend to develop goals of their own and to displace or submerge their identified purpose. Institutions are quick to say that the roles they fulfill have been determined by the communities which they serve. All strive to reach their manifest destiny which appears to be to become a multiversity. To resolve the issue, decisive action is necessary in re-identifying the roles and service parameters of each institution.

✕ accountability and the quality of education

During the sixties, growth was the by-word for

post-secondary non-university institutions. In 1960-61, there were only four institutions with a combined, estimated head-count enrolment of 4,000 students. By 1970-71, the number of institutions had grown to sixteen with a combined, estimated enrolment of 29,500 students. Over this same decade the number of program offerings grew from 36 to 228. Clearly the 60's were a period of extreme activity in the post-secondary non-university sector.

As a result post-secondary education tended to assess its progress in quantitative rather than qualitative terms. Progress has been a matter of mathematics, of adding up burgeoning enrolments, new institutions, new programs, more courses, and more dollars spent and needed. We have lived in an era when more education became synonymous with better education.

There is today ample evidence of a deepening concern for the quality of education. Growing public and student disaffection with educational institutions and with the methods and content of education has manifested itself in reduced levels of financial support and in demands for accountability.

In some provinces, governments and institutions alike have responded to these demands by adoption of program budgeting procedures and by use of simulation models and decision-making tools. Elsewhere on the continent, performance goals have been specified, performance contracts have been let and performance indicators have been applied. But public and student disaffection

continues unmitigated by these efforts at accountability. Apparently the public thirst for accountability has not been quenched by reports of dollars spent, institutions built, and students served.

Evidence that demands for accountability go much deeper might be found in the *Eighth Annual Review of the Economic Council of Canada* wherein the Council urges that output measures and indicators be developed to take into account the net benefits which are attributable to the educational system. The development of such indicators will serve to monitor the effects of educational policy and program formulation, and may be used as measures of both efficiency and effectiveness.

But the real burden of accountability appears to rest more upon institutions than it does upon provincial or national governments and government agencies. The need is urgent for fresh insights into the nature of the instructional process and for the development of new techniques for teaching, learning, and evaluation. The decade of the 70's brings with it the need to address ourselves to the *quality* of education.

As an initial step in this direction, post-secondary institutions might examine existing programs to determine the elements which might profitably be removed or replaced; the relationships between content, required time commitments, and expected outcomes; the relationships between instructional processes and cognitive styles of clients; and the relationships between initial enrolments and the number of graduates.

Assessments of the quality of educational services rendered might be based upon how well the institution attracts and retains those in greatest need of education, upon how well individual differences are developed, and upon how well the student does after graduation.

GOALS FOR THE 70'S

The foregoing examination of basic issues brought into focus a number of needs relative to the nature of services which will be required in the present decade.

The examination of issues related to population suggested that demands for post-secondary education are likely to increase particularly in large urban centers. The declining rural population will require access to services either through the mass media or through special financial assistance to attend institutions in large urban centers. The bulge of potential students in the 18-24 age group will exert continued pressures until 1981.

The analysis of participation ratios revealed wide disparities among the various geographic regions in the province. Again the problem of access to educational opportunities became evident.

The examination of the accessibility issue pointed the direction for increased attention to the teaching-learning process and to the need for alternative methods of delivery. Similarly, the examination of institutional development highlighted the need for these alternatives through

establishment of institutional roles and service parameters.

The issue related to roles of institutions suggested a need for congruence between the goals of institutions and the needs of society and potential clients of post-secondary education.

The accountability issue suggested that public confidence in post-secondary education must be regained through close examination of the nature of services rendered and the benefits derived therefrom.

All of these issues pointed directions for change. These have been translated into the following set of recommended goals for advanced education in the 70's.

RECOMMENDATIONS

1. That the system of Advanced Education be developed on an open-door open-access basis which makes adequate provision for individualized upgrading, and which takes into account the experiential background of the student by giving appropriate credit for "education" gained outside of the formal educational system.
2. That instructional programs be increasingly personalized to provide students a broad element of choice from among personally relevant content areas.
3. That variation in instructional processes be developed to take into account different cognitive styles of individuals and to ensure a high rate of success.

4. That time commitments be made more flexible so that time required is related more to individual aptitudes and expected outcomes and less to the needs of the academic or professional community.
5. That non-terminal programs be developed on a core-ladder program basis so that adults of all ages may have ready re-access at any point in time or process, with transferability assured to any level in the system without unnecessary repetition.
6. That non-institutionalized delivery systems be developed to extend post-secondary opportunities to all students without "residence" requirements.
7. That communication and counselling systems be developed to ensure that the population is aware not only of the services being provided but also of the job potential of programs being offered.
8. That needs assessment capabilities be built into the system in order that emerging societal, client, and manpower needs may be identified and met.
9. That evaluation criteria be developed and applied to ensure that students have access to useful and personally significant educational experiences.
10. That flexibility be the keynote of the future delivery system. Both the organization of the system and the services which it renders must be viewed as ad hoc and subject to change whenever the needs of society, individuals, and manpower change.

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SYSTEM INTEGRATION AND COORDINATION

Total system integration and coordination has increasingly come to the fore as one of the major needs to be fulfilled in the province of Alberta. During the past decade, a variety of government departments and agencies have been involved to varying degrees in the delivery of post-secondary educational services. This situation has resulted in considerable jurisdictional and service overlaps, in perceived inequities in funding and capital development and in each sub-system and institution striving to achieve its manifest destiny — that of being all things to all people. In effect, the lack of effective system coordination has made it difficult if not impossible to engage in effective planning and to allocate resources on a rational basis.

During the 60's, when the total educational system experienced increasing demands for services, burgeoning enrolments and generous financial support, this situation was not viewed as constituting a serious problem. Indeed the contrary probably was true. It was considered desirable to create specific-purpose agencies to nurture the growth of new institutions and to protect the autonomy and integrity of established institutions and sub-systems. The demand for services and the apparent availability of financial support were sufficient to set aside concerns for roles and service parameters and for efficiency, effectiveness, and public accountability.

However, as has previously been indicated, the situation has changed. Public disenchantment with post-secondary education is evident.

Institutional demands for increased support are perceived as being in direct competition with increasing public demands for such services as health and social welfare, housing, and protection of the quality of our environment. The heretofore unquestioned causal relationship between education and national productivity has been set aside in favor of demands for more utilitarian services provided through an effective and efficient delivery system. Coordination and accountability have become by-words as means for controlling educational systems and forcing them to reflect the needs and values of the present.

While some futurists may view this trend with alarm, social values are realities which post-secondary education must face and reflect in its services. Lacking an ideal future to which all will agree to aspire, we must be content to permit society a strong voice in shaping its own destiny by constantly involving the lay public in creating and operating a flexible and adaptive post-secondary educational system — a system which informs the individual and provides him with an array of educational opportunities from which he may choose what he believes is best.

How then can the post-secondary education system be integrated and coordinated while at the same time reconciling the need for societal control with the need for the institutional autonomy which is essential to providing the flexible and diverse services which are required? The solution to this problem is no easy task. On the surface,

it seems a simple matter to impose strong controls and thereby avoid the risk of political embarrassment, duplication and inefficiency. However, strong centralized control runs a hazardous path in that it tends to stifle initiative, standardize services, and base decisions on political expediency and not necessarily on rational considerations.

Thus, any organizational structure which coordinates through bureaucratic control runs contrary to the need to safeguard individualism and pluralism in society. Past experience both in this province and elsewhere suggests that the creation of bureaucratic control and regulations results in further homogenization of educational institutions, in standardization of services, and in the reduction of the *variety* of educational opportunity which is essential for implementation of a humanistic philosophy centered on the autonomy, integrity, and self-fulfillment of man.

The issue revolves around the question of how to create a flexible and responsive education system and at the same time meet the legitimate need for integration, coordination, and efficiency. It is clearly evident that any coordinating agency must develop and maintain the confidence of the public, of its member institutions, and of government without becoming too powerful, too massive, too bureaucratic, and too remote from the people to be served.

An extensive search was conducted for such an organizational structure which would fulfill the provincial need for coordination of the system of

advanced education. To facilitate the task of analysis and choice from among many alternatives, a rationale for organization was developed and applied to existing and proposed coordinating structures.

The rationale is paraphrased here in support of the structure proposed herein and the concluding recommendations.

A RATIONALE FOR ORGANIZATION OF ADVANCED EDUCATION

The rationale which follows articulates a philosophy with an educational goal. It then extrapolates from these, four organizational principles. The principles formed the basis on which the recommended organizational structure was developed.

philosophy

In order to develop an acceptable external or internal organizational structure, it is necessary to assume a philosophical position relative to the nature of man. This provides the planner with a zone of tolerance within which proposals must be contained.

The basic philosophic position proposed is that:

Man is free to expand his rational powers and is capable of infinite perfectability through experience and education. He is predisposed to act within a framework of mutually acceptable laws in order to achieve goals which he cannot attain alone.

Adoption of this philosophic view of man as being free to choose the kinds of experiences he requires in order to expand his physical, mental, and spiritual powers and thereby reach higher levels of perfection, implies accepting in principle the necessity for lay participation in institutional governance. If man is indeed capable of perfectability, and if the educational enterprise is designed to provide such experiences as are required for him to develop his potential, it follows that the participants and products of the educational enterprise should have a direct voice in its operation.

goals

An *a priori* statement of goals is essential if an organization is to be purposefully structured to achieve specified goals. If, for example, the organization's goal is to provide all clients with a basic prescribed level of education, then the system structure will tend to foster a monolithic organization in which *standard* sets of educational experiences are provided.

If, on the other hand, the organization's goal is to provide educational experiences by which each individual in society may elect to develop his potential as a member of society, it is necessary to develop a system structure which will foster institutional flexibility and adaptability to community and individual needs.

The general educational goal proposed is that:

The Advanced Education system will facilitate the provision of educational experiences by which each individual in society may elect to develop his innate potential as a member of society.

Adoption of this proposed goal does not imply that the development of individual potential should occur at the expense of the improvement of society. Since the goal is stated in terms whereby the educational system will develop the individual's potential as a *member* of society, it seems reasonable to assume that pursuit of this goal makes adequate provision for societal self-renewal — not self-renewal in visionary terms of an ultimately ideal society, but self-renewal in terms of what society and its members perceive to be desirable at any future point in time.

organizational principles

If the foregoing philosophy and goals are generally acceptable, several principles may be extrapolated as guides for system organization.

FIRST PRINCIPLE. If man is perceived as being free and capable of perfectability, it follows that he requires a strong element of choice as to how and in what direction he may choose to perfect himself. Therefore, the organization providing him with educational experiences must quickly accommodate to his interests and needs. In view of the existing pluralism in society, it is questionable if a tightly-structured monolithic system is desirable or acceptable.

If one further accepts the view that society is undergoing increasingly rapid change and that transience is a fact of life, if it is accepted that knowledge is expanding at an exponential rate and that human values are shifting, then the need for adaptability at the institutional level becomes

imperative. It is therefore most desirable to adopt an organizational structure which can establish institutional roles and service parameters and at the same time permit rapid adaptation of educational programs and services to new and emerging needs.

Acceptance of the above leads to the principle that:

PRINCIPLE 1: The external system structure for advanced education must foster the development of relatively independent institutions which are highly responsive to the needs of their clients.

SECOND PRINCIPLE. If the goal of education is to provide experiences which fulfill man's needs for self-improvement and perfectability, it follows that there will be a synergetic effect upon the system as demands for educational opportunities increase. Unless the system as a whole is directed and coordinated, the likely result will be an increase in number and diversity of institutions coupled with considerable duplication of services and competition between institutions. Although duplication can never be avoided in total and although some degree of competition is desirable, the growing public demand for efficiency and accountability in the education sector necessitates effective coordination.

Acceptance of the above leads to the principle that:

PRINCIPLE 2: The structure for advanced education must provide the coordination necessary for the orderly growth of the system and for its efficient and effective operation.

THIRD PRINCIPLE The need for system planning and coordination, coupled with public demands for efficiency and effectiveness, could well lead to structuring a bureaucratic system which may be inconsistent with the professed philosophy and goals for the organization. However, the coordination and control which are necessary for orderly growth, efficiency and effectiveness do not preclude extensive bureaucratic control. Indeed, if the functions of the organization are examined and clearly specified, it may be possible to structure an efficient and effective system without unnecessary intrusion upon institutional independence. The following principle with respect to the functions of the organization is therefore proposed:

PRINCIPLE 3: The functions to be performed at the system organization level must be delimited to those functions which cannot be performed efficiently and effectively at the institutional level.

Adoption of the foregoing principle necessitates that organizational functions be closely examined particularly with respect to whether or not the structure will result in a governing or coordinating organization, and with respect to the *degree* to which functions are performed at the system level.

FOURTH PRINCIPLE. An examination of the existing organization for post-secondary education in the province reveals that at least seven government departments are involved in some way in providing educational services. This involvement ranges from the direct provision of

services through to providing financial incentives to potential students.

In addition to creating problems in coordination, this situation has resulted in the growth of a number of special-purpose institutions and with responsibility for the delivery of certain educational services being assigned to agencies whose primary purpose is not education.

If it is agreed that coordination is necessary and that government should assume responsibility for coordination, adoption of the following principle is proposed:

PRINCIPLE 4: The responsibility and authority for the coordination or advanced education and for the provision of services should be an assigned function of an agency whose primary concern is education.

Adherence to this principle does not mean that single-purpose institutions are not desirable or that all advanced education must be institutionalized. It does mean, however, that a single government agency should assume responsibility for all advanced education.

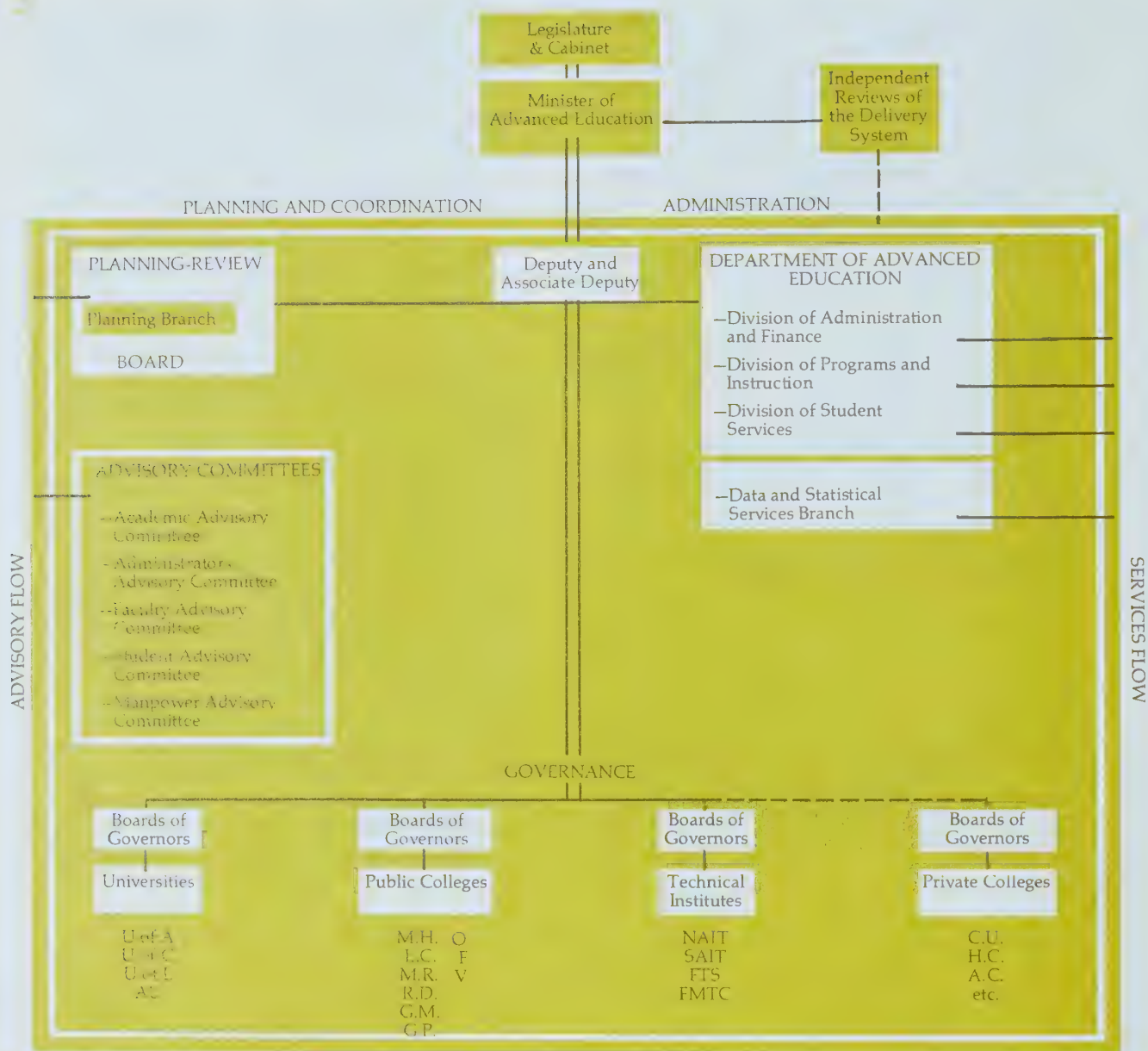
A PLANNING-REVIEW BOARD STRUCTURE

The recommended model for the coordination and governance of advanced education is based upon the foregoing Rationale for Organization and upon consideration of the need for structural efficiency and organizational effectiveness. In addition, consideration was given to the number and extent of changes which would be required in order to implement the recommended model. This model was developed in October, 1971 and published in *Master Planning Monograph #5*. The model and the rationale upon which it is based was discussed and reviewed by various committees and individuals.

The recommended model, entitled "A Planning-Review Board with Institutional Governing Boards," is presented in chart form as Figure 2.

The model includes a system coordinating structure consisting of a Planning-Review Board having an executive arm in the form of a Department of Advanced Education. Institutional governance is provided through boards of governors for each institution. The model also provides for a judiciary function to be performed by the Planning-Review Board, and for an advisory function to be performed by the professional staff of the department and by members of advisory committees.

Planning is viewed as a major board function and has been placed within the board framework to ensure that planning and policy decisions are closely interrelated.



A PLANNING-REVIEW BOARD WITH INSTITUTIONAL GOVERNING BOARDS

THE PLANNING REVIEW BOARD. A Planning-Review Board is proposed as a co-ordinating planning-policy making body. Its major concerns at the planning level will be with ensuring adequate accessibility, opportunity, and supply of educational services to meet the existing and future needs of society, manpower and individual clients. To do so, it must develop policies to ensure the orderly growth, development, and operation of all levels of advanced education as integral parts of a unified system.

The major functions of the Board will be in the following areas which affect allocation of resources and overall system coordination:

- (a) System planning.
- (b) Capital and operating finance.
- (c) Program allocations.
- (d) Transferability and accreditation.
- (e) Establishment of new institutions.
- (f) Vetting and approving sub-system and institutional plans.
- (g) Acting as intermediary between government and institutions and among institutions.
- (h) Evaluating the effectiveness of organizational structures in fulfilling the intent of organization.
- (i) Serving as a board of appeal from the lay public, clients, professional staffs, governing boards, and department personnel with regard to the operation of the system or any of its member institutions.

The Planning-Review Board is viewed as a viable structure for providing a measure of balance between the lay public and government bureaucracy, between powerful institutions and government, and among institutions themselves. To be successful, the Board must be a statutory agency with specified powers rather than a voluntary association hopefully endeavouring to secure the cooperation of member institutions. While the autonomy of institutions must be preserved, government has a legitimate role in ensuring that the public interest is adequately protected as institutional development takes place. This situation requires that all parties involved in advanced education make certain concessions. Institutions must be willing to operate within the parameters of policy established by the Board; government must be willing to withstand pressures from influential institutions to proceed independently; and the Board must be prepared to *involve* member institutions in continuous long range planning. In order that the Planning-Review Board may fulfill the above functions, it will be necessary to provide the Board with the following powers, authority, and support:

- (a) A mandate to engage in continuous short and long-range planning.
- (b) Powers to establish an information collection and processing capability which will generate the information base essential for program planning, resource allocation, and monitoring the effectiveness of the system in meeting identified needs.

- (c) Powers to approve, allocate, and terminate programs and services.
- (d) Powers to approve and allocate capital funding and development.
- (e) Powers to allocate and review operating finance.
- (f) Powers to engage an independent staff.
- (g) Powers to coordinate all scholarship, grant and aid programs to students.
- (h) An executive Department to perform the service and administrative functions required.

The Planning-Review Board will be composed of fifteen members, nine of whom will have voting privileges and seven of whom will have participatory-advisory privileges only. Recommended Board membership is as follows:

- | | |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| STATUTORY-VOTING: | <ul style="list-style-type: none"> 1. Deputy Minister of Advanced Education 2. Associate Deputy Minister of Advanced Education 3. Deputy Minister of Education |
| APPOINTED-VOTING: | <ul style="list-style-type: none"> 4. Representative of Lay Public (Agriculture) 5. Representative of Lay Public (Labour) 6. Representative of Lay Public (Business) |

ADVISORY:

- 7. Representative of Lay Public (Professional)
- 8. Representative of Lay Public (Women's Organization)
- 9. Representative of Lay Public (Industry)
- 10. Coordinator of Administration and Finance
- 11. Coordinator of Programs and Instruction
- 12. Coordinator of Student Services
- 13. Coordinator of Data and Statistical Services
- 14. Coordinator of Planning
- 15. Representative of the Academic Advisory Committee

It should be noted that the voting membership is weighted six to three in favor of lay representation to ensure protection of the public interest. However, in balance to this weighting, advisory members are included to ensure that policy decisions are informed by current operations and professional expertise.

The inclusion of the Deputy Minister of Education as a statutory-voting member is recommended to provide a policy linkage between the Department of Advanced

Education and the Department of Education. This relationship is essential both for planning purposes and for reviews of the delivery system.

The Deputy Minister of Advanced Education is placed in a line position relative to the planning activities to be conducted within the Board. His major role, in addition to ensuring that the planning mandate is fulfilled, is to provide leadership to the Board in its deliberations, to secure the cooperation of member institutions, to ensure the effective functioning of advisory committees, to organize the flow of information to the Board, to serve as a liaison officer with government and member institutions, and in general to oversee the work of the Board.

The Associate Deputy Minister of Advanced Education is placed in a line position relative to the Department of Advanced Education. His major role is to oversee the implementation of Board policies and plans through the Department's activities, and to ensure that appropriate service functions are provided to the Board and to institutions as required. In effect, the Associate Deputy Minister will serve as a voting member of the Board and as its chief executive officer.

A small but competent planning branch is placed within the Board and is directly responsible to the Deputy Minister. This Branch will be concerned with the functional aspects of planning and with the development

of system master plans. In addition, the Branch will be responsible for the identification of alternatives and assessment of the implications and cross-impacts of each alternative. This aspect will require close communication with government, government departments, existing systems, the public, and other planning agencies. The Branch will also be responsible for developing appropriate evaluative techniques with which to monitor the system and the effectiveness of master plans.

THE DEPARTMENT OF ADVANCED EDUCATION. A Department structure is proposed in the model to perform the executive functions necessary for the implementation of policy and to provide the data bases, information, and professional expertise essential for planning and review decisions.

In the interest of efficiency, the suggested organization of the Department of Advanced Education is on a functional rather than sub-system basis. This avoids unnecessary duplication of functions for each sub-system and ensures intra-departmental coordination.

However, organization on functional bases might have disadvantages in that the needs of large influential institutions might over-shadow the needs of smaller, developing institutions. While the possibility of this problem materializing is reduced by the fact that the Planning-Review Board will be mandated to develop system plans and policies to ensure orderly and effective system growth, the need for balance must be carefully

considered. The adopted organization for performing executive functions must make adequate provision to ensure that new institutions are provided the attention and support required for their development and maturation.

It is proposed that the Department be organized into three major executive divisions to be responsible for implementing Board policies. Each division will be immediately responsible to the Associate Deputy Minister.

The executive functions to be performed by the Department will fall into three broad categories: administration and finance, programs and instruction, and student services. Each category of functions will constitute the responsibility of a Division. For example, the *Administration and Finance Division* will be responsible for the general administrative relationships with other government departments and with each institution. The Division will be responsible for operating and capital disbursements and for monitoring system and institutional resource allocations. The *Programs and Instruction Division* will be responsible for maintaining a central program registry and for the regulation of program development. Program approvals, program reviews, and instructional modes will constitute the major responsibility of this Division. The *Student Services Division* will be responsible for such matters as student assistance, housing and fees as well as for maintaining a central student application system.

In addition to the three executive Divisions

outlined above, a *Data and Statistical Services Branch* will be required to perform the data collection and analysis functions relating to maintaining a student information system and to the development and operation of simulation models. This Branch will in effect provide a service function to each Division as well as to member institutions and to the Planning-Review Board.

While this plan does not itemize the specific functions of each Division, the principles outlined in the Rationale for Organization set the parameters for determining the functions to be performed at the Department level of the organization.

ADVISORY COMMITTEES. Little has been said up to this point about the use of advisory committees at either the system or institutional level. However, reference to the recommended model will reveal that a number of advisory committees are included at the system level in order to utilize the expertise and secure the involvement of all involved in the delivery and utilization of services. These advisory committees, representing administrators, faculty, students, and other government departments and agencies will serve to advise the Planning-Review Board and the Department of Advanced Education. Furthermore, the current practice of utilizing curriculum advisory committees should be continued by all institutions.

summary and retrospect

The recommended model represents a synthesis

of a number of possible organizational structures, each of which might be applied in organizing a new system. In light of the fact that the advanced education system is an on-going organization consisting of a wide variety of institutions with varying levels of influence and at varying levels of maturation, it was considered necessary to maintain considerable continuity with existing structures. At the same time, it was considered desirable to accommodate recent organizational changes in a manner least disruptive and hopefully most effective.

The recommended model also represents a departure from traditional practice in developing organizational structures. The practice in this regard has been either to state a philosophic position and then set it aside as a bothersome task completed, or to propose a structure and then defend it on purely pragmatic grounds. The procedure followed in developing the recommended model was to state a philosophic position, extrapolate from it an educational goal and organizational principles, and then develop a consistent model for organization.

To be successfully implemented, the model requires many concessions and much cooperation on the part of everyone involved in providing services at the advanced education level. To be effective, the model must not be viewed as a final reorganization but as the first of many reorganizations. As suggested by Alvin Toffler:

The organizational geography of super-industrial society can be expected to become increasingly kinetic, filled with

turbulence and change. The more rapidly the environment changes, the shorter the life span of organizational forms. In administrative structure, just as in architectural structure, we are moving from long-enduring to temporary forms, from permanence to transience. We are moving from bureaucracy to adhocracy.

RECOMMENDATIONS

11. That a Planning-Review Board be established to replace the two existing Commissions as the coordinating agency for all Alberta advanced education.
12. That all advanced educational services currently provided under the jurisdiction of other government departments be brought under the aegis of the Advanced Education portfolio.
13. That legislation be developed to provide the Planning-Review Board with the following powers, authority, and support:
 - (a) A mandate to engage in continuous short and long-range planning.
 - (b) Powers to establish an information collection and processing capability which will generate the information base essential for program planning, resource allocations, and monitoring the effectiveness of the system in meeting identified needs.
 - (c) Powers to approve, allocate, and terminate programs and services.
 - (d) Powers to allocate and review operating finance.

- (e) Powers to approve and allocate capital funding and development.
 - (f) Powers to engage an independent staff.
 - (g) Powers to coordinate all scholarship, grant, and aid programs to students.
 - (h) An executive Department of Advanced Education to perform the executive functions required to implement system plans and policies.
14. That the Student Finance Board be disbanded and its functions undertaken by the Planning-Review Board and the Department of Advanced Education.
 15. That all student assistance provided through other government departments and agencies be channelled through the Planning-Review Board and administered by the Department of Advanced Education.
 16. That the following Advisory Committees be struck:
 - (a) A Faculty Advisory Committee to advise the Board on matters relating directly to faculty concerns.
 - (b) A Student Advisory Committee to advise the Board on matters relating directly to student concerns.
 - (c) An Academic Advisory Committee to advise the Board on matters relating directly to the academic concerns of institutions.
 - (d) An Administrators Advisory Committee to advise the Board on administrative matters.

(e) A Manpower Advisory Committee to advise the Board on matters relating to manpower supply and demand and on such matters as apprenticeship training which relate to labour and industry.

17. That all institutions be placed under the direct jurisdiction of Boards of Governors.

INSTITUTIONAL GOVERNANCE

Once system goals have been established, roles and service parameters of institutions determined, programs approved, and resources allocated by the Planning-Review Board, institutional boards of governors will assume responsibility for the operation of each institution.

The basic role of the governing board will lie in determining the operational policies of each institution, in determining intra-institutional resource allocations, and in assuming responsibility for the general operation of the institution.

Among the specific duties to be assumed will be the following:

- (1) Preserving and utilizing the physical and human assets of the institution through acquiring and holding property, and by employing personnel, fixing their salaries, and assigning duties.
- (2) Budget administration including personnel salaries, resource allocations, and capital development. The Board will also be responsible for presenting and supporting budgets to the Planning-Review Board.

- (3) Planning and maintaining institutional purpose to ensure that the institution is responsive to the contemporary needs of society in general and of its community and clients in particular. The board will be responsible for program review and for submission of program requests to the Planning-Review Board.
- (4) Ensuring that administration, faculty, students, and staff are provided meaningful roles in the decision-making process.
- (5) Acting as a court of appeal in the resolution of issues. In assuming this role, the board must recognize that whenever it is called upon to adjudicate, the normal processes have failed.

The definition of role described above requires that members of boards be selected as trustees rather than as managers. This permits the selection of board members from a wide pool of talents and does not necessarily require the addition of faculty and students in order to provide for a more equitable distribution of power.

However, this role for the board may require that the governing structures of institutions be redesigned to ensure that operational policies, resource allocation decisions, and other administrative decisions are made and executed to the satisfaction of the constituents of the community and the institution. Furthermore, the governing structure must ensure that institutional growth, development, and operation falls within the parameters of system policies.

The specific organization of each institution was considered to be beyond the scope of this master plan. Suggesting or imposing a single structure upon all institutions would militate against the principle that institutions should be free to develop independently. However, adoption of the role specified for boards of governors should enable each institution to create its own unique structure for governance which is in keeping with its role and purpose.

RECOMMENDATIONS

- 18. That each institution in the system be governed by an appointed Board of Governors who will be responsible for the operational functions of the institution.
- 19. That in cities and geographic regions where more than one public non-university institution exists, i.e. Calgary, Edmonton, Grande Prairie-Fairview, the feasibility of having at least one member common to two boards be explored.
- 20. That membership on boards of governors be constituted as follows:
The president or chief executive officer.
Representative of students.
Representative of faculty.
(4-8) Members selected from at large to represent the community or region.
- 21. That appropriate legislation be drafted to provide boards of governors with the necessary powers, authority, and support to fulfill the role specified above.

PLANNING PROJECT REFERENCES FOR CHAPTER 4

monographs

BOSETTI, R. A. *Alternative Futures: A Rationale for Organization and its Application to Existing and Proposed Structures for Advanced Education. Master Planning Monograph #5.* EDMONTON: ALBERTA COLLEGES COMMISSION, OCTOBER,

THIEMANN, F. C. *Alternative Futures: Alternative Patterns of Governance for the Alberta Post-Secondary Educational System. Master Planning Monograph #2.* EDMONTON: ALBERTA COLLEGES COMMISSION, MAY, 1971.

BOSETTI, R. A. "Alternatives for Institutional Governance," APRIL, 1972.

"Community Involvement in Public Colleges," JULY, 1970.

"Current Issues in the Community College," SEPTEMBER, 1971.

CHAMCHUK, N. J. "Conflict in College Level Administration: An Analytical Review of Abstractions," FEBRUARY, 1971.

"Organizational Development Alternatives," NOVEMBER, 1971.

KOLESAR, H. "College-Government Relations in Canada," JUNE, 1972.

"College Governance: Implications of the Commission System," MAY, 1971.

The master planning project was premised on the belief that advanced education should be responsive to the needs of *individuals, manpower, and society*. For purposes of investigation and analysis, these needs were separated as though they existed independently of each other. However, it was recognized that the needs under investigation formed only three interrelated dimensions of the total needs system which influences the provision of publicly-supported services.

MANPOWER NEEDS

It must be recognized as a preface to the following discussion that the forecasting of manpower supply and demand poses an extremely difficult challenge. The task is made virtually impossible by the fact that both quantitative and qualitative manpower needs are likely to continue changing with increasing rapidity and in hitherto unforeseen directions. To engage in speculation as to the nature and direction of future changes is both interesting and exciting. But to formulate policies and to link future educational output to such speculation runs a serious risk of misdirection.

The necessity for developing estimates of manpower needs was apparent during the initial stages of the planning project, and immediate action was taken to assemble all available data. It was found that much of the research in this area had been conducted to fulfill the needs of specific users. Comparable data on which to base

projections were either not available or in such a state of disarray as to be practically useless for projection purposes. Problems attendant to examining manpower needs were found to be legion. Labour force data tended to be reported in a variety of categories none of which could readily be matched to current educational program outputs. The most recent data describing the labour force by occupational categories were drawn from the 1961 census making the assumptive leap between 1961 data and the present difficult to accept.

The impact of manpower training incentives such as are provided by the Federal government under *The Adult Occupational Training Act* and by the provincial government through the *Priority Employment Training Program*; the mobility and flexibility of graduates seeking employment; and the future economic and social climate of the province were found to be imponderables which could not be taken into account in projecting manpower demands.

However, even if the current problems in forecasting manpower demand could immediately be surmounted, a large moral issue looms in any considerations for firmly linking manpower demand with educational system output. Enforcement of such a linkage would lead to strict command-type of economic planning and to setting program quotas which would infringe upon the individual's freedom of choice. Even if the moral issue could be resolved, the problem of translating manpower demand into educational

programs remains unsolved. How does an educational system provide for the immediate application of acquired knowledge and skills and, at the same time, prepare the individual for a lifetime of change?

It may simply be that from a conceptual-philosophical point of view all that is presently morally and politically acceptable is to provide directional information with regard to manpower needs. Hopefully, in future, this sense of direction can be refined to establish a relationship between manpower demand and the supply of trained personnel. But even at this level the use of manpower demand information for anything but guidance is questionable.

labour force: growth and composition

Growth in the labour force depends in part upon growth in population and upon the propensity of the population to create and seek employment.

During the period 1941 to 1961, the relationship between population and labour force fluctuated between 39 percent and 37 percent. Preliminary figures for 1971 suggest a slight increase to approximately 40 percent with the increase likely attributable to increasing numbers of females entering the labour force in the service and clerical sectors. Current trends suggest further increases in female participation ratios.

Occupational shifts have been evident in the declining number of people employed in the agriculture sector and in the increasing numbers employed in the industry and service sector.

Recent projections of manpower requirements for the prairie region suggest that further occupational shifts may result from increasing demands for technical and professional personnel. This category, which formed 9.5 percent of the labour force in 1961, is projected to grow to 16 percent of the labour force by 1975.

The limited data available suggest that the labour force will continue to grow at a slightly faster rate than is the total population. Using the 2 percent general population growth rate, it is possible to project increases in the labour force of over 30,000 people annually. Current labour force projections vary considerably in growth estimates with annual growth projections ranging from 20,000 to 30,000.

current marginal supply

The *1970 Survey of Alberta Manpower Development*, completed in 1972, reported a total trained output from post-secondary education of 18,626 persons in various occupational groups. Of these, 807 had secured post-graduate degrees, 4,924 undergraduate degrees, 2,768 diplomas, 6,076 certificates, and 4,051 licenses by examination.

If this output figure of 18,626 persons is compared to high estimates of growth in the labour force, then over 60 percent of the 30,000 persons annually entering the labour force do so with some level of post-secondary education. If, on the other hand, the output figure is compared to low estimates of growth in the labour force, then almost the complete entry possesses some form of post-secondary qualification.

These figures do not, of course, take into account such factors as population mobility, replacements within the labour force, unemployment, and the match between graduate qualifications and manpower needs. Nor is any account taken of the impact of most programs for the unemployed although these programs are designed to upgrade training levels. The impact of these factors cannot be determined from currently available data.

However, the figures do raise serious questions relative to the provision and expansion of educational opportunity and relative to policies and procedures for dealing with unemployment. In addition, the figures point to the need for more

complete, comparable, and reliable needs and output data for planning educational and social policy.

trends in manpower demand

An extensive review of literature and studies purporting to forecast manpower demand revealed that at the present time it is possible only to determine in a very gross sense what manpower demands will be for broad categories of economic activity. Quantitative projections could not be developed because of lack of information as to the nature of the Alberta labour force and as to other significant variables previously identified.

Table 5

TRENDS IN MANPOWER NEEDS TO 1976

	To 1970-71	To 1976
AGRICULTURE	Decrease	Decrease
CONSTRUCTION	Increase	Increase
Plumbers	Increase	Increase
Machinists	Increase	Increase
Sheet Metal Workers	Increase	Increase
Electricians	Increase	Increase
Clerical	Increase	Increase
FORESTRY	Decrease	Decrease
GOVERNMENT	Increase	Increase
Health Care & Social Welfare	Increase	Increase
Day Care Personnel	Increase	Increase
Lab Assistants	Increase	Increase
Lay Counsellors	*	Increase
Medical Social Workers	Increase	Increase
Psychological Assistants	*	Increase
Social Work Assistants	*	Increase
Therapists	Increase	Increase
EDUCATION	Increase	Increase
Native Teacher Aides	*	Increase
POLICE SERVICES	Increase	Increase
HUNTING AND FISHING	Decrease	Decrease
MANUFACTURING	Increase	Increase
Agricultural-Secondary	Increase	Increase
Petro-Chemical-Secondary	Increase	Increase
MINING	Increase	Increase
SERVICE	Increase	Increase
Environmental Technologists	Increase	Increase
Hotel-Restaurant Workers	Increase	Increase
Labour Relations Technologies	Increase	Increase
Recreational Services	Increase	Increase

*Few occupations of this type exist at this time.

Table 5 and explanatory materials which follow were compiled to provide a general sense of direction for program development and planning purposes.

Where data were available regarding specific job categories within broad areas of economic activity, increase-decrease trends for specific jobs were included as a breakdown of the general area of economic activity. Where such specification was not available, only indications about the general area were included.

comments relative to identified trends

AGRICULTURE. Projections of manpower needs for the agriculture sector indicate a declining manpower role. Such projections are consistent with the trend to urban living and the growing economic pressures on the small family farm. These projections are not, however, used to suggest that agriculture will not continue to play a significant role in Alberta's economic activity. Agriculture satisfies export demand and in this way brings outside dollars into the Province. Agriculture also functions in relation to manufacturing. Comment will be made later about this consideration.

CONSTRUCTION. Labour force increases in construction may be anticipated if the estimated relative importance of industrial sectors, Table 6,

is taken as an indicator of changes in need. Currently oil and gas construction is the most important type of activity in the construction area. With planned expansion of tar sand activities in northern Alberta and consideration by the government for incentive changes in the petroleum industry, activity should continue well into the 70's.

FORESTRY. As a sphere of economic activity relative to the total province, forestry will decline. Projected in current dollars, a small increase in forestry activity is expected. However, projected in 1961 constant dollars, a slight decline is forecast. Trends in the forestry sector could be underestimated should some of the planned pulp mills become operational by 1976. The vast reserves of timber resources in the province do contain real potential for increased industrial and recreational use. But as an industry in its own right, forestry will in all likelihood generate fewer jobs at least until planned pulp mills begin to operate.

GOVERNMENT. Government activities are expected to continue generating approximately 6 percent of Alberta's gross provincial product to 1976. Government expenditures have been forecast to grow by 6 percent annually to 1976 with education, roads, and health and welfare continuing as major areas of expenditure. The

Table 6

RELATIVE IMPORTANCE OF INDUSTRIAL SECTORS IN ALBERTA (AS PERCENT OF TOTAL)

	1966	1971	1976
Foreign	0.5	0.3	0.2
Mining	3.4	4.0	4.3
Manufacturing	8.5	9.0	10.2
Construction	6.1	6.3	7.0
Government	5.1	5.8	6.0
Agriculture	30.6	22.6	16.8
Service	45.8	52.0	55.5
Totals	100.0	100.0	100.0

Sources: Alberta Bureau of Statistics, Business Trends and Estimates.

following areas of government activity are significantly related to manpower needs:

(1) Health Care and Social Welfare: Specific occupations which seem likely to develop in this area in the 70's are: Psychological Assistants, Social Work Assistants, Medical Assistants, Lay Counsellors, Lab Assistants, Day Care Personnel, Therapists, and Medical Social Workers. These categories are only examples of service activities related to the projected social demand for increased services for interpersonal relations, for mental health development, and for participation in social change processes. Additional research in the areas of psychology, physiology, and chemotherapy will receive an exceptional amount of support. Added to this is the likelihood that community mental and emotional health centres, offering out-patient and "crisis-intervention" treatment, will become common. The implications for all types of support staff associated with these activities are extensive.

Although Volume 5 of the *Manpower Review* indicated that some balance between supply and demand would begin to emerge in the 70's for health-welfare oriented jobs, there is every reason to believe that specific areas of increase will occur. Should projections of increased participation of females in the labour market be accurate, then there likely will be an increased demand for child day-care centres. Such a demand is already beginning to make itself felt in the urban centres of Alberta. (It should be noted that the number of female workers in the Alberta labour force

increased by 100 percent during the period 1951-1961).

Great care must be taken, however, to avoid interpretation of demands for day care centres as being demands for the provision of universal kindergarten services as part of the educational program. Should such an interpretation be adopted, then the projected manpower need for day care personnel is likely overestimated.

Similar comments made earlier relating to social welfare can also be made about health care. The *Seventh Annual Review of the Economic Council of Canada, Patterns of Growth*, indicated that there may be a continuing shortage of therapists and medical social workers by 1975. With respect to other health care personnel, there will be a need for continued large increases. It is further worth noting that many categories of health care workers are quickly trained. The implications for retraining are obvious. There is the further consideration that careful research into determining the optimum ratio of professional to support health care staff would lead to the possibility of training large numbers of support personnel. Such an approach might make it possible to effect a lower unit cost of health care service through more efficient use of well-trained and high cost health care personnel.

(2) Education: One specific occupational category of concern to the non-university education sector is the manpower demand for teacher aides. The projected increase does not consider the use of teacher aides in the total educational system, al-

though this possibility is not to be excluded from consideration. However, projections in this area are extremely difficult in view of present cost pressures on school boards and also in view of the increasing balance between supply and demand in the teaching profession. As costs continue to rise, however, an approach to wide use of teacher aides could result in more efficient use of high cost professional staff.

As native people continue to demand and play an active part in the education of their children, there should be an initial need for native teacher aides to assist the better qualified, non-native educator. Unfortunately, a majority of native teachers teaching predominantly native elementary schools will not be a feasible alternative before the year 2000. The value then, of such native teacher aides in helping the non-native teacher structure a more meaningful educational experience for Indian and Metis children becomes obvious. The implication for the ultimate and complete professional training of native teachers should also be clear.

(3) Police Services: The continuing flow of people into the urban areas in conjunction with the alienation and identity problems arising in urban life create demand for personnel in law enforcement. More specifically, there would likely be an increasing emphasis placed on policemen to be more than apprehenders of criminals and directors of traffic. There is an increasing insistence that policemen be cognizant of pressures that produce social deviancy and also

be equipped with the social skills necessary to handle such problems. Three implications are clear: (a) the numbers of police required will increase; (b) training to equip police to cope with social violence will be necessary; and, (c) training of law enforcement officers within the total social framework will ensure a better understanding of the issues at stake in society.

HUNTING AND FISHING. This general sector of economic activity comprises a very small part of the Alberta economy. Projections are for a continued decrease in jobs for the individual self-employed operator. In view of the fact that many of the individuals presently engaged in this activity are Indians and Metis, there would seem to be some indication for additional concern about native economic development and native retraining programs.

MANUFACTURING AND PROCESS RELATED INDUSTRIES. Historically, manufacturing has grown at about 6 percent per year. Projections indicate that a similar yearly growth rate is anticipated up to 1976. However, if Alberta is to diversify her economic activity to remove the reliance on resource extraction, then manufacturing would appear to be the direction for endeavor.

If one assumes Alberta's future economic expansion to be based on industrialization, then Ontario may provide a credible comparative base. If such is the case, this adds strength to the belief that the manufacturing and production-processing

activities will increase. More specific examination of manpower needs suggests that increased demands for machinists, plumbers, sheet metal workers, electricians, clerical workers, and transport and communication workers will occur.

Two additional approaches to manufacturing hold considerable potential for diversification, growth, and the concomitant creation of new jobs. One approach would be to carefully examine the relationship between the resource activities of agriculture and secondary manufacturing and between petrochemical mining and secondary manufacturing. An extensive potential exists for secondary and tertiary manufacturing as they relate to agriculture and to the petroleum industry.

Agricultural activity is important to the province since it supplies farm output to manufacturing firms in the province for further processing. In the linkage between agriculture and agricultural processing, there is developed another set of income and employment opportunities. Similarly, the petroleum industry can supply raw petroleum to manufacturing firms for further processing and thereby create still another set of income and employment opportunities. The volume of activity in the area of secondary and tertiary manufacturing will, in all likelihood, depend on the types of incentive government is able to provide for the development of such industries.

Another approach to diversification becomes apparent on examination of provincial imports. In addition to provincial production, \$140 million of

food and beverage items were shipped from Canada into the province in 1967. Items included in this \$140 million were imports from cheese manufacturers, fruit and vegetable canners and preservers, breakfast cereal manufacturers, biscuit manufacturers, confectionary manufacturers, sugar refineries, miscellaneous food manufacturers, and breweries, distilleries and wineries. Alberta-based manufacturing in all these areas would yield a potential for jobs and ultimately for people adequately trained to do these jobs.

As Alberta moves from primary sector employment to secondary and tertiary employment, demands for highly qualified manpower will increase. Thus the professional and technical categories may be projected to grow at a proportionately greater rate. Concomitant manpower demands will result for clerical and managerial personnel.

A final effect of this shift from primary sector industry will be to further increase the existing trend toward urbanization and increased incomes. These will increase the public demand for goods and services such as health, welfare, and education.

MINING. Dominated by the petro-chemical industry in Alberta (96 percent of mineral production), the mining industry is projected to show substantial increases to 1976. The development of the tar sands in northern Alberta holds particularly good promise for training of employees in extraction operations.

SERVICE. All projections and economic forecasts anticipate continued and strong growth in the service area. This sector includes transportation and communication, utilities, wholesale and retail trade, finance, insurance, real estate, and community, business, and personal services.

One area of the service sector which shows clear increases is that of recreational services. Jobs will be provided and ultimately post-secondary training required for: (a) initial construction activity; (b) individuals to organize, develop and operate leisure time programs and facilities; and (c) pollution control in the use of recreational areas.

A similar projected demand also exists for people adequately trained in the restaurant, hotel, and tourist component of the service industry.

Two other samples of occupational categories possible in the service area are:

(1) Labour-Relations Technologists: There would appear to be a demand for this type of personnel. Such a demand is inferred from the rapidity of technological change and present procedures by which labour and management relate to each other. Potential students could come from industry or be preparing to enter industry. Long or short-term programs could be offered to train personnel to manage or simply to appreciate the dynamics of industrial democracy. Such technologists could operate at the factory or industry level.

(2) Environmental Technologists: Demand for people trained in this area comes from many of the other sectors of economic activity. Manufacturing, mining, and increased recreational use of all resources create the need for environmental control and protection.

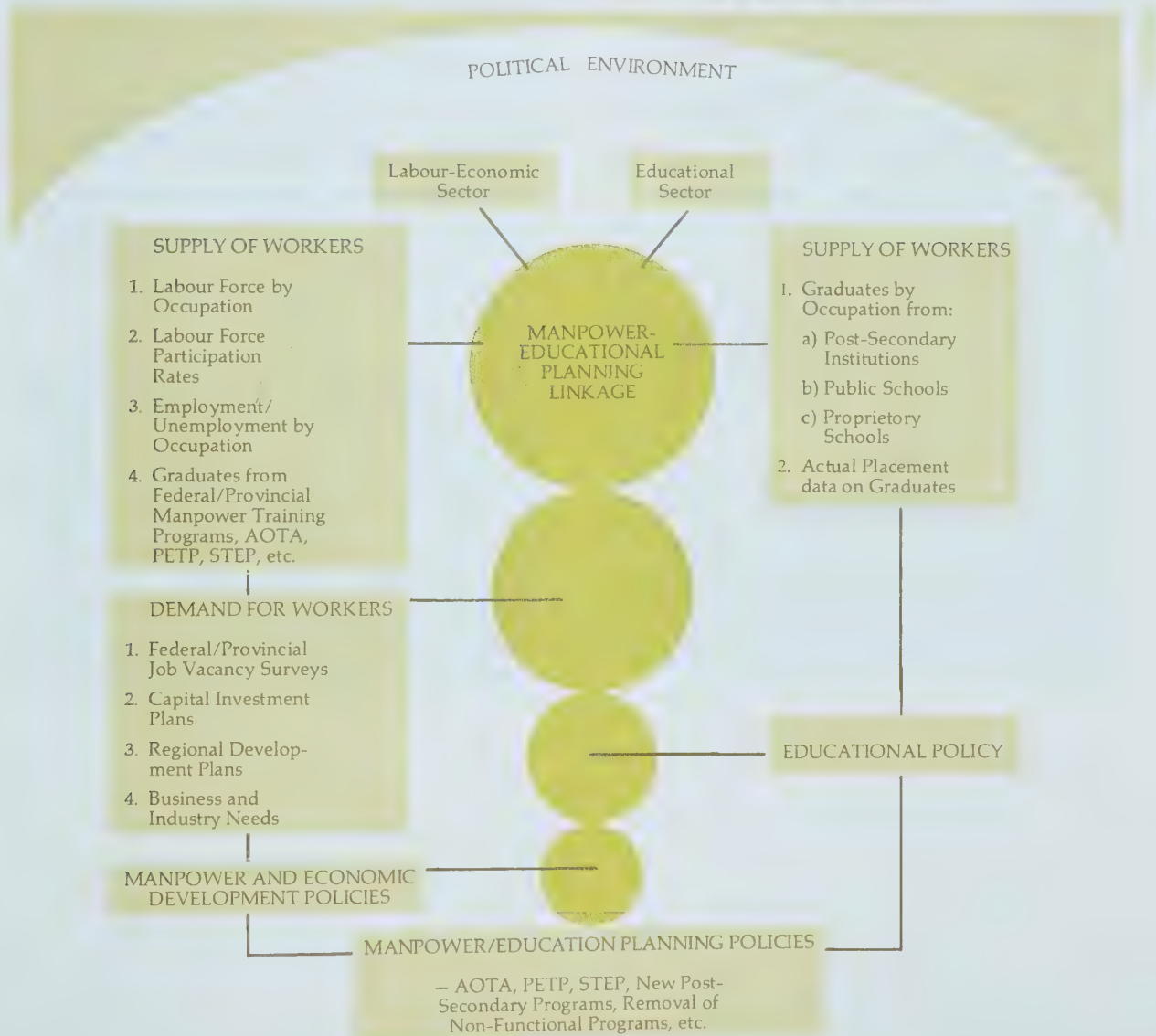
This small selection of service-related occupations was in no way intended to limit the suggestion of manpower areas that will require educational support. The areas mentioned were the ones that occurred most frequently in the examination of economic forecasts. No doubt many other types of occupations will emerge in response to future needs.

future manpower planning

Difficulties currently being experienced in determining and projecting manpower demand suggest that a manpower needs assessment capability be developed either on a cooperative information-exchange basis or jointly between the federal government, provincial government, and institutions supplying educational services. The nature of manpower demand is such that precise data is required as to industrial and economic development within each region. At the same time, because of such factors as manpower mobility and migration, it is necessary to develop an information linkage between local and regionally defined needs and the broader provincial and national situation.

RECOMMENDATION

22. That the following model (Figure 3) be developed to provide an on-going manpower needs assessment capability and to facilitate matching institutional operation with federal and provincial training incentives in order to ensure a reasonable balance between manpower demand and supply.



The model forms a part of the provincial planning environment discussed in Chapter 12.

RECOMMENDATION

23. That current use of ad hoc program advisory committees be continued and expanded.

Since details of specific increases in numbers of persons for whom training may be required cannot be ascertained with any accuracy, continued reliance will have to be placed upon the present system of supply and demand.

Conceptually, at least, if close rapport exists between employers and the *ad hoc* program planning committees of institutions, and if information is collected on placement rates, demand for graduates and capital investment plans, then the supply and demand of trained manpower may reach its optimum rate of satisfaction and be planned more accurately using both statistical manipulations at a centralized and highly aggregated level and *ad hoc* committees who are in close proximity to the manpower needs of specific economic sectors in each geographic region.

RECOMMENDATION

24. That the post-secondary sector maintain an adaptive pose towards manpower needs.

Organizationally, this means that institutions must avoid becoming locked into maintaining only existing programs. Institutional flexibility should be maintained through appropriate staffing, program development, and review

procedures. Institutions themselves should actively seek out manpower needs through consultation with employers and through contact with regional manpower centres.

STUDENT NEEDS AND MOTIVATIONS

One of the most pressing problems in any attempts to plan for post-secondary education is to determine, as precisely as possible, the motivations of present and potential students and what they need as a consequence. Until such an analysis is effectively carried out, the development of programs which successfully satisfy student needs is extremely difficult. A number of research studies related to this problem were conducted through the efforts of the Colleges Commission Master Planning Project and the Commission on Educational Planning.

general student needs

The report of the Commission on Educational Planning discussed the issue of individual needs within the general context of societal development during the next 30 years. In citing a number of directions for the development of individual needs, the report predicts that there will be rising expectations for satisfaction of physical, social, and security needs and a growing emphasis on individual self-fulfillment.

However, within these predictions there is a strong suggestion that circumstances may develop which will frustrate the satisfaction of these needs.

The implication for post-secondary institutions is quite clear, the responsibility weighty, and the task very difficult. Not only must specific student needs be identified, but great care must be taken to ensure that translation of needs to programs is not frustrated by eccentricities within the organizational and administrative structures of the institutions. This necessity is as true of individual institutions as it is of the total post-secondary non-university system.

As the system of Advanced Education is reorganized structurally, very careful action must be undertaken to ensure that organizational dysfunctions which could frustrate the fulfillment of needs are not built into the system. The most conspicuous requirement is to ensure that coordination of the system is effected as quickly and as rationally as possible. Once appropriate moves have been made in this direction, then personnel must realize and accept at both the rational and emotional level that coordination will not simply be guaranteed because such a goal was the intent of reorganization. Constant social change means that effective coordination of the system will most necessarily be an ongoing effort. All personnel at the system and institutional level will have to consistently review the services rendered to ensure that programs are indeed responsive to student needs.

Within the context of these general observations, a number of specific observations about student needs in the post-secondary non-university system can be made.

X post-secondary non-university student needs

An extensive study of the needs and motivations of students currently enrolled in sixteen post-secondary non-university institutions in the province was conducted during 1971. The study reported in *Master Planning Monograph #7* was designed to provide information on issues such as student governance, communications, and accessibility as well as on the general needs and motivations of students in each institution.

The study indicated that:

...in general, there is considerable satisfaction with the programs, courses and physical amenities provided for them (students) in these Colleges. The College programs, in particular, and the methods of teaching adopted generate satisfaction in the clientele of the Colleges. No basic student need has been identified as being frustrated on any sizeable scale. The message from the student body seems to be: (a) the general principles on which the system of post-secondary education is based are sound; (b) in certain respects each college could be improved but these ways are College-specific; (c) it is a matter of identifying weaknesses and remedying these piece-meal, without any violent change of direction.

The motivation which prompts most students to attend institutions within the post-secondary non-university system was identified as primarily vocational. The basic motivation of a great majority of students is to improve their job situation. The task of the college as perceived by students is to give them the best possible training

in their particular field of specialization as economically and as conveniently as possible.

The most outstanding exception to this generalization is the university transfer student. The selective mechanisms for intake of the students tend to produce conflicts of aim, of personalities, of educational and of social-political values. From an educational point of view, the university transfer student is conscious of the fact, in terms of his purpose and aspirations, that he has chosen second-best. Although the specific "purposes and aspirations" of the university transfer student were exceedingly difficult to extract from the study, it can be assumed that the transfer student also has a vocational orientation in the very broadest sense in that he too anticipates that his training will ultimately prepare him for a job.

The findings do suggest, however, that the university transfer student has some needs which are definitely not being satisfied in the college context. While he can be characterized as being broadly vocational in his orientation to the college, he also has an orientation toward and a desire for a liberal-academic educational atmosphere that is not being satisfied. If this reasoning is anywhere near correct, the conclusion may be that the dissatisfaction of the transfer student is insoluble in a college setting because where he really wants to be is in a university. The proximity and economy of the college operation, which makes the college initially attractive, tend to place him in a dissatisfying and unhappy situation.

Again, if this reasoning has any validity, solution of the problem would seem to be related to the status of the college, *vis-a-vis* the university, as perceived by the college transfer student. Possible solutions lie in achieving status for the college so that it cannot be perceived as a second-best institution. Essentially this approach to the problem lies in the general overall coordination of the post-secondary system so that service functions are logically delineated as justifiable and worthwhile endeavours for each institution. With specific reference to the problem of the college transfer student, this could mean allocating all university training to the universities as one alternative. In view of the economic and proximity factors mentioned earlier, this move is difficult to justify.

Another approach would be to clearly identify some part of university training (year one and/or two for example) as the exclusive function of the colleges. Removal of these years from the universities would obviate the problem of status conflicts between colleges and universities and, by virtue of potentially larger enrolments, might allow for the development of the liberal-academic educational atmosphere assumed to be desired by the college transfer student. In an allocation of this nature, the problem of first and second year university attendance for students in Edmonton, Calgary and Lethbridge would have to be considered. Care would also have to be taken with such an alternative to ensure that the dominant characteristic of colleges did not become those of little universities.

A third approach might be to maintain the existing arrangements whereby colleges located in areas which do not have geographic access to universities provide university transfer programs. Concerted efforts would have to be made to guarantee that the growth of such transfer functions in the colleges would occur in conjunction with balanced growth in the career and community service functions. Failure to ensure such an orderly and coordinated growth would almost be certain to sound the death-knell for the concept of a college as a community-based and community-responsive institution. The tendency would be to proliferate the number of transfer options provided and thereby commit large proportions of institutional resources to this end. Ultimately, this would narrow the range of choices open to other students and would rob the institution of its purposes in serving a wide variety of needs. Obviously these problems are related in a very real way to: issues of coordination within the system, allocation of program and service functions, and need and motivation research within the service area of each institution.

problem areas

Documentation of specific weaknesses and problem areas as focuses of student needs occurred in a variety of sources. Some of these concerns arose during open meetings held by the Alberta Colleges Commission at college centres in 1971-72. Other sources include studies done by McLeish (1972) and Clarke (1971) and the proceedings of an Alberta College Student

Conference held by eleven colleges at Lethbridge in January, 1972.

Possibly the most pervasive and most all-inclusive problem could be identified as the need for better and more effective communication throughout the whole system. Many of the problems identified by students as needs revolve in some way around the communication need. If knowledge is power in our present society, then the need for adequate communication is vital to a strong and healthy post-secondary system. Such a theoretical consideration in its own right makes effective communication vital. The fact that such a need has been identified by students as well makes the problem even more pressing.

Another major need identified by students was for better vocational counselling services. The solution to this problem might lie in better preparation of vocational counsellors. The type of counselling required would place more emphasis on the real world of jobs and opportunities, on specific skills and temperaments required for quite specific career and occupational decisions. It has long been recognized that many of the students who attend the non-university post-secondary institutions need an opportunity to review various career opportunities. Many of them have not developed clear educational and vocational goals. Thus what is required is a move away from "non-directive" counselling aimed at student "hangups" towards counselling based on providing factual information about jobs, training programs, and the student's own special aptitudes.

In addition to the foregoing general needs for better communication and vocational counselling, students identified specific need for:

- ☐ Transferability throughout the whole post-secondary system.
- ☐ Student financing and administration of loans to provide access to funds for more students, to monitor and prevent fraudulent claims, and to permit 18 year olds to qualify for loans.
- ☐ Provincial policy on campus use of liquor consistent with changing social and legal views towards alcohol consumption in our society.
- ☐ Provision of residences where none currently exist.
- ☐ Provincial policy relating to foreign students.
- ☐ Greater flexibility in program offerings.
- ☐ Improved college-employer communication to ensure better acceptance of college graduates by employers.
- ☐ More college-community interchange (communication) to guarantee a better understanding for the college and its students by residents in the college's service area.
- ☐ More serious efforts at student-instructor and student-administrator communication to effect better relationships among these groups.
- ☐ More detailed communication to prospective students and students finally enrolled to allow students' perceptions and expectations to be more in line with requirements of college programs and the college

environment. This need can, in part, be associated with the earlier identified issue related to vocational counselling.

It should be noted that throughout the research which has identified the foregoing data on student needs and motivations, the use of the term "students" does not refer only to individuals in the age category of 18 to 24 years. A "student" in the advanced education system means anyone who meets the minimum entrance requirements. In terms of age this means that students can presently range from 18 years to almost any age.

This consideration has real implications for needs and motivation research. In effect, it means that researchers cannot restrict themselves to researching the narrow band of the community traditionally considered to be students. The whole community that the institution serves becomes the area for examination.

Furthermore, these considerations point up the fact that present research has concentrated only on students presently enrolled. This approach assumes that needs of consequence exist only within the body of students already being served by the college. In effect what researchers have been asking themselves is: "What needs of the present student body are not being met or are being met poorly? "This is a viable area for concern. However, if post-secondary institutions are to serve the whole community, then emphasis in needs research must also focus on those members of the community who do not participate in post-secondary education. Only

when this is being done can institutions lay any real claim to providing adequate research into student needs. Institutions concerned with meeting student needs must seek to *discover* educational needs which are poorly represented (minority interests) or of which their present clients are unaware, although they exist in potential form in themselves.

RECOMMENDATIONS

25. That concerted efforts be made at the institutional level to develop effective communications procedures whereby students are made aware of policies and plans which exist for the benefit of individual students, for the institution as a whole, and for the community in which the institution is located.
26. That communication procedures make adequate provision for students to voice their concerns and identify their needs.
27. That counselling services at the institutional level be developed to provide information regarding job opportunities, career requirements, training programs, financial assistance, and to advise the student as to his own aptitudes.
28. That student information services be provided at the provincial and/or regional level. These services should be developed to provide factual information about the location and availability of educational opportunities and financial assistance;

program entrance requirements; program duration, content and costs; and the employment potential for each category of training.

29. That carefully designed studies be undertaken to generate reliable information as to:

- (1) The needs and aspirations of potential students in those sectors of the population which have not historically attended post-secondary institutions.
- (2) The effects of post-secondary education on the attitudes, values, and motivations of students.
- (3) The success of students in gaining employment and in meeting employer needs.

SOCIAL NEEDS

Information regarding social needs and social values which have implications for post-secondary non-university education was sought from a number of sources.

futures forecasts

Perhaps the most useful information regarding the future of Alberta society is documented in *Social Futures, Alberta 1970-2005*. Although there are methodological weaknesses inherent in the Delphi Technique which was used as the means for developing the social forecasts, the information provided is nevertheless useful for planning purposes. It should be recognized, however, that the information is in no way prophetic: it does

not describe what will be in future. Instead it provides a description of the likely future implications of current values, trends and developments, and permits planned intervention in order to ensure that the forecasts which are considered undesirable do not become future reality.

The following five major themes identified in the report all have implications for post-secondary non-university education:

- (1) Our society is in, and will continue to be in, a period of transition.
- (2) Aspirations of Albertan's will far outrun their ability to reach those aspirations.
- (3) Our most salient institutions—the family, church, education, leisure and politics—will undergo continued change.
- (4) Individuality will be upgraded and expressed through education, leisure and religion.
- (5) Certain aspects of change will create higher levels of psychic and social unrest.

some implications for post-secondary education

The dynamic nature of present and future society will require that educational institutions maintain an anticipating and adaptive pose. Neither the organization of the system and its institutions nor the services which it renders should be expected to remain static. If education is to serve the needs of a changing society, it must constantly identify

and anticipate social needs and provide services which society and its members perceive as appropriate.

If the aspirations of Albertan's are indeed increasing at a rate which will outrun their ability to reach these aspirations, then education will require selective procedures for resource allocations. Educational services will need to be closely related to individual needs and aspirations and at the same time related in a rational way to the total spectrum of services provided by government agencies.

If values ascribed to individual autonomy, integrity and freedom are to be enhanced, then educational institutions must be structured to provide the student optimum freedom of choice as to "what," "where," "when" and "how" he will learn. Pluralism in values and attitudes will need to be accepted as a social reality to be accommodated and nurtured. Social demands for accountability will need to be reconciled with individual demands for physical, social and intellectual freedom.

The elements of psychic and social unrest which are already becoming evident concomitants of social and technological change must be accommodated by education as dynamic and creative forces rather than resisted as being only potentially destructive. In addition, education can mitigate the causes of psychic and social unrest by fulfilling individual needs for emotional and intellectual development and by providing its clients with the skills and knowledge necessary

not only to accommodate to social change but also to direct it.

The foregoing brief examination of social forecasts and of some of their implications for post-secondary education is viewed as providing additional documentation and support for the recommendations posed in this plan. If the social futures described in *Social Futures Alberta 1970-2005* are in any way accurate forecasts about the future which may come about as an extension of present trends, then the needs for institutional flexibility, for public participation in coordination and governance, and for adoption of a humanistic philosophic position in providing educational services become directional imperatives for the current decade.

PLANNING PROJECT REFERENCES FOR CHAPTER 5

monographs

McLEISH, J. *Student Needs and Motivations: A Detailed Study of the Needs and Motivations of Students Currently Enrolled in Sixteen Educational Institutions in Alberta. Master Planning Monograph #7.* EDMONTON: ALBERTA COLLEGES COMMISSION, MAY, 1972.

papers

CLARKE, N. W. J. "Problems of Alberta College Students as Perceived by Students," MAY, 1971. (RESEARCH STUDY #12).

"Projections of Manpower Requirements and Implications for Their Use in Non-University Post-Secondary Educational Institutions," AUGUST, 1971.

CHAMCHUK, N. J. "Manpower Planning," JUNE, 1972.

INSTITUTIONAL ROLES AND SERVICE PARAMETERS

system composition and functions

The Alberta post-secondary non-university system consists of sixteen publicly-supported institutions whose aggregated services are designed to provide comprehensive training and education for students and adults representing a wide range of interests, aptitudes and types of intelligence. Programs have been developed to include university transfer education; career, vocational, and technical training; general education; compensatory education in the form of remedial and upgrading instruction; and continuing education for adults. In addition, institutions have undertaken the tasks of providing guidance and counselling to students and of serving as cultural and community service centres.

In providing these programs and services, the system broadens the base for higher education and extends educational opportunity to increasingly greater numbers of students. The system fulfills a second important function by providing the education and training essential for entry into a variety of occupations and careers. In so doing it fulfills the manpower demands of an expanding economy. Finally, the system adds to the variety of educational opportunities which is essential for the implementation of a humanistic philosophy centered on the autonomy, integrity and self-fulfillment of man.

allocation of roles and service parameters

At the time when each institution was established,

it can be assumed that there was basic agreement between existing educational needs and goals and the specified purposes to be pursued by the institution. The agricultural and vocational colleges were created to fulfill the manpower and cultural needs of an agricultural economy; the technical institutes were created to fulfill the manpower needs of an industrialized economy; the public colleges were created to fulfill the social need for greater access to higher education through a comprehensive variety of educational programs.

Yet despite the fact that these institutions were created to fulfill different needs and to achieve different goals, all have tended to offer similar programs, to employ similar instructional modes, and to serve a similar clientele. While it is clearly recognized that needs have changed and that institutions must be responsive to new and emerging needs, the fact that institutions have expanded their roles is no assurance that these needs are being fulfilled.

In order to ensure that there is adequate accessibility, opportunity, and supply of educational services to meet existing and emerging needs within economic and societal constraints, it is necessary to assign roles and service parameters to each institution.

In determining the roles and service parameters of sub-systems and institutions, a variety of factors needs to be taken into account. One of the major considerations is to provide services which are readily accessible to the residents of the

Province. Ideally, services should be provided within commuting distance of clients. This is of course practically impossible for *all* residents of the Province of Alberta because of its large geographic area and low population density.

However, geographic accessibility is not an insurmountable problem since some form of post-secondary education is already being provided within commuting distance of at least 75 percent of the Alberta population. The solution to the problem of providing geographic accessibility to services is, in part, dependent upon whether it is most desirable to provide financial assistance to students in remote areas to encourage them to attend institutions in centres where educational facilities are located, or whether it is most desirable to utilize modern communications technology such as is suggested by the Commission on Educational Planning in its proposed Alberta Academy and ACCESS system. Both alternatives have their obvious strengths and weaknesses, but regardless of the solution chosen, it appears certain that in the foreseeable future institutional services will remain in demand and will need to be coordinated.

Another factor which needs to be taken into account relates to the plans and aspirations of each institution. There is considerable pressure upon institutions, both from within and without, to become all-purpose, autonomous entities. While the desirability of institutional comprehensiveness is well documented, Alberta's low population density necessitates that only selected institutions

fulfill a comprehensive all-purpose role and that others provide specialized services.

A final consideration regarding institutional roles relates to the degree of institutional autonomy which is desirable. As has previously been indicated in Chapter 4, reconciling the need for coordination with the need for institutional autonomy is no simple task. Institutions must be provided considerable latitude in order that they may be responsive to emerging needs. At the same time, the system must be coordinated to avoid duplication and inefficiency and to ensure that needs are fulfilled.

The following recommendations provide a framework for program coordination by establishing the parameters within which institutional development may take place. Although the recommendations initially may appear restrictive in that the current aspirations of all institutions may require adjustment, there is adequate provision for all institutions to take the initiative in developing quality services within their assigned role.

RECOMMENDATIONS

30. That the public colleges be designated as comprehensive institutions providing university transfer education; career, vocational and selected areas of technical training; general education; compensatory education in the form of remedial and upgrading instruction; and continuing education for adults.

31. That the technical institutes be designated as special purpose institutions adaptive to manpower demands in providing career, vocational, and technical training in the engineering related technologies, health service technologies, and apprenticeship trades. These institutions should be assigned exclusive responsibility for specialized technology programs beyond the second year.
32. That the agricultural and vocational colleges at Fairview and Vermilion be designated as satellite colleges of Grande Prairie Regional College and Grant MacEwan Community College respectively for college transfer and university transfer education. These two institutions would continue to offer first-year programs in agriculture transferable to Olds Agricultural and Vocational College and to provide agricultural extension services to the region.
33. That Olds Agricultural and Vocational College be designated as a special purpose institution providing programs in agricultural technologies, marketing, and management. It would also continue to provide agricultural extension services to the region. This institution should be given exclusive responsibility for second-year specialized programs in the agricultural technologies.
34. That the Alberta Vocational Centre, Calgary be incorporated into Mount Royal College and that the Alberta Vocational Centre, Edmonton be incorporated into Grant MacEwan Community College.
35. That the Alberta Vocational Centre, Fort McMurray be designated as a vocational-technical college specializing in mining and oil extraction technologies and in native education. Its vocational-technical programs should be transferable to the Northern Alberta Institute of Technology for completion of the second year of training. College services would centre on occupational training and compensatory education.
36. That the Alberta Petroleum Industry Training Centre be designated as a satellite of the Northern Alberta Institute of Technology providing specialized programs related to the needs of the petroleum industry.
37. That the Forest Technology School at Hinton be designated as a satellite of Grant MacEwan Community College for college transfer and university transfer education; as a provincial field study centre for the application of techniques in resource management, reclamation science, and related fields of study; and as a training centre for forest services personnel.
38. That the foregoing recommendations # 30 to # 37 be used for purposes of reviewing the programs and courses currently offered by each institution with a view to expanding program offerings and to transferring or phasing out programs and services which do

not fall within the role and service parameters of each institution.

PROGRAM DEVELOPMENT IMPLICATIONS

The foregoing set of recommendations outlined in a general way the roles and service parameters for the four categories of institutions comprising the post-secondary non-university system. Figure 4 provides a summary review of the recommended roles and service parameters as they might apply to each institution.

The brief discussion which follows outlines the nature and extent of programs currently offered by each institution and details some of the implications which the recommended role and service parameters will have for program development.

It should be noted that where suggestions are made for transferring services from one institution to another, it is intended that faculty and appropriate equipment be transferred to the receiving institution in a fair and equitable manner.

medicine hat college (1971 enrolment: 414)

Operating under affiliation agreements with the University of Calgary, this college has focused its program development activities on the university transfer area. First year transfer programs are provided for admission to some twenty faculties and schools. Second year programs are provided for admission to more than ten faculties and

schools. Over fifty percent of the students are enrolled in university transfer programs.

In addition, the college has developed two year programs in business administration and secretarial science, and in diploma nursing. A one year program is provided in commercial cooking, and a semestered program is provided in academic upgrading.

The Medicine Hat College Conservatory of Music offers instruction in piano, violin, theory, guitar, woodwind, brass, classical ballet, and jazz dance. Course offerings are designed for preparation for Toronto Conservatory, Western Board of Music, and Royal Academy of Dance examinations. A number of music courses are also applicable for university transfer purposes.

Examination of the "Roles and Service Parameters" matrix, Figure 4, indicates that this college should continue its university transfer function but should extend its other program offerings into community service careers, upgrading, vocational, and technical areas. Continuing education and community services programs should be developed to serve the needs of the city and surrounding service area. Music and the fine and practical arts should receive increased emphasis.

Limited development of the industrial technologies is suggested with provision for students to transfer to an institute of technology for completion of the second year of study. Similarly selected core programs in the allied health services could be developed with provision

for transfer to Mount Royal College or SAIT for specialization.

Continuing education, community services, and general programs could include family life, community problems, environmental and other thematic studies developed to serve identified needs.

Future resource allocations in this college should reflect increased emphasis on the development of a comprehensive range of program offerings as is suggested in Figure 4. Continued growth of this college is highly dependent upon the development of new programs in areas other than university transfer.

lethbridge community college

1971 enrolment: 1,120)

This college provides a comprehensive range of programs and services organized under six schools:

School of Business Education (2 programs)

School of Liberal Education (7 programs)

School of Technical-Vocational Education (11 programs)

School of Agriculture (2 programs)

School of Nursing Education (1 program)

School of Continuing Education (13 programs and course areas)

Program development has focused on fulfilling a broad range of community and regional needs. The scope of program and course offerings reflects the college philosophy of extending educational opportunity to all who wish to pursue non-university studies.

The schools of Business Education, Liberal Education, and Nursing education fulfill needs for career programs in such areas as business administration, secretarial science, law enforcement, social counselling, and nursing. In addition, the School of Liberal Education fulfills a limited university transfer function by offering college and university preparatory programs as well as specific programs transferable to other Canadian and American universities.

Continuing education, community service programs, and programs for the culturally and educationally disadvantaged are provided through the School of Continuing Education. Programs include courses in basic English, adult upgrading, business education, management, agriculture, physical education, general interest areas, homemaking, sewing, languages, and technical-vocational areas. Between 100 and 125 courses are operated annually in this area. In addition, short courses to fulfill needs of the business and industrial community and to provide places for students under such programs as "Priority Employment Training" are provided as requested.

Technical-Vocational and agricultural programs and courses are provided at the first year level in engineering technologies, food services, industrial trades, apprenticeship, vocational agriculture, and irrigation technology. These programs fulfill the basic manpower needs of the city and surrounding service area.

Reference to Figure 4 indicates the need for continued expansion of the industrial technologies with provision for transfer to the technical institutes for completion of the second year of study.

Allied health services should be expanded to include core programs transferable to Mount Royal College or to SAIT.

Programs in agriculture could be expanded to include the first year of programs in marketing and management. With the exception of the two-year irrigation technology programs, others should be of one year duration with transfer to Olds Agricultural and Vocational College for completion of the second year.

The limited university transfer function should remain in the college for transfers to American and other institutions, and to provide access to Alberta universities through university preparatory programs coupled with specific core transfer courses. In view of the fact that the University of Lethbridge is located in the same city, no further development of university transfer programs is required.

Programs in music and the arts should be developed by the college to supplement those provided in the community. Courses in painting, drama, ceramics, applied art, and music could complement the theatre arts program currently offered.

Education for the culturally and educationally disadvantaged is another area for further program

development. Present offerings in the Blood Reservation should be expanded with similar offerings being provided on the Peigan Reservation. Intercultural programs and others such as the Indian Counsellor Assistant Program should be offered on campus.

Teacher aide programs might be developed as demands for such personnel increase. The training of native teacher aides could be conducted in conjunction with programs for the culturally and socially disadvantaged.

Lethbridge Community College should continue to develop its scope of program offerings as a comprehensive institution meeting the non-university post-secondary needs of the south-west portion of the province.

mount royal college (1971 enrolment 2,831)

This college provides a comprehensive range of programs designed to meet a variety of student and community needs. Overall program development reflects balanced emphasis in several major areas.

Operating under affiliation agreements with the University of Calgary, the college provides first-year transfer programs to nine faculties and schools and second year transfer programs to five faculties and schools. A number of these programs are transferable to the University of Alberta and to other Canadian and American institutions. Approximately twelve percent of the students are enrolled in university

transfer programs or in combined university preparatory-transfer programs.

Extensive program offerings are also available in the following program areas: health and allied services, business and administration, music, community service careers, and communications.

Upgrading and vocational training programs include preparatory courses, business education, nursing orderly training, and industrial English. These are offered in the Churchill Park Campus located in downtown Calgary.

Educational programs for the culturally and educationally disadvantaged are also provided in the Old Sun Campus located at Gleichen. Programs on this campus include basic education courses to meet the expressed needs of the Blackfoot Band.

Future program development in Mount Royal College will require careful coordination with program development in SAIT and at the Banff School. Adult and continuing education programs will similarly require careful coordination with the above institutions and also with programs offered under the jurisdiction of the public school system.

The "Roles and Service Parameters" matrix (Figure 4) delineates service areas consistent with the view that public colleges should be comprehensive institutions and that technical institutes should be adaptive institutions specializing in the technologies. However, provision is made for the retention of the Alberta College of Art, home economics, and

communications program areas as integral parts of SAIT.

Mount Royal College's role in these areas should be limited to selected programs. For example, music, speech and the theatre arts might appropriately be continued and expanded by Mount Royal with painting, sculpture, and ceramics continued and expanded by SAIT.

Major program development for Mount Royal College should be undertaken in the following program areas: health and allied services, business and administration, community service careers, upgrading, vocational, and compensatory education. Continuing education and community services should be expanded in conjunction with the operation of Churchill Park Campus.

In the health and allied services area, this college should become a major training centre for nursing education, nursing aides, nursing orderlies, medical assistants, community nursing-social work, and for specialized training in such areas as rehabilitation and geriatric care. Programs to provide specialized training for students transferring from other colleges should be a major area for development.

Business and administration will form another major program area. Provision should be made for the transfer of programs currently offered in SAIT and for the development of core program areas. Programs relating to tourism and the hospitality industry should be developed jointly by Mount Royal and SAIT taking full advantage of existing facilities in the technical institute.

Community service careers might be expanded to include such programs as specialized training in police, industrial security and fire sciences, leadership studies, and legal aides training. The training of learning assistants could form another major area of specialization. The instructional organization of the Lincoln Park Campus is particularly well suited to training personnel in a variety of instructional modes. Similarly, the Old Sun Campus can serve as a setting for training native teacher aides.

Programs for the culturally and educationally disadvantaged should form another major area of emphasis. Programs related to community problems such as alcoholism, drug addiction, family living, intercultural problems, and rehabilitation of juvenile offenders could be developed. Similarly, educational services could be provided to penal institutions through appropriate programs. Program offerings in the Old Sun Campus should be expanded as planned.

Continuing education services might well continue to focus on providing courses to meet the needs of the business community. However, wherever demand is identified, day programs should be extended for evening credit or organized on a modular basis requiring short, concentrated time commitments.

southern alberta institute of technology
(1971 enrolment: 2,810)

SAIT provides an extensive range of programs within several program areas.

Major program development has occurred in the industrial technologies where nineteen programs are offered ranging from three-year programs in aeronautical engineering technology, industrial engineering technology, and telecommunications to a one-year program in diesel mechanics.

Business and administration forms another large program area with five programs offered in administration, graphic arts, hotel management, merchandising and secretarial science.

Five programs are offered in health sciences in medical-dental technologies.

The home economics area is similarly well developed with programs in baking, cooking, and serving.

Communications forms the smallest program area with three programs offered: broadcasting technology, journalism, and radio-TV arts.

In addition, SAIT provides apprenticeship training to almost 4,000 students in eighteen programs, and it provides correspondence courses to some 3,000 students in power engineering, automatic controls, practical mathematics, and dietary service.

Continuing education services are well developed to meet the needs of the community and surrounding region. Included in the extensive offerings are day courses in sewing crafts and evening courses in upgrading, trade, technical, industrial, and general interest program areas.

Not included in the above listings are four-year programs in advertising art, fine and applied art,

and pottery and ceramics which are offered by the Alberta College of Art which operates as a department of SAIT.

A marked characteristic of both SAIT and its sister institution, NAIT, is that both operate on a manpower demand basis. The instructional facilities and the number of training places provided appear to be fairly closely related to manpower needs. By operating on this basis, these institutions provide an essential balance to the social demand type of philosophy which tends to prevail in the public colleges.

Reference to Figure 4 indicates that SAIT should continue its specialized role in providing training and educational programs in the industrial technologies and apprenticeship.

In these areas continued emphasis should be placed upon developing and adapting programs to suit the industrial needs of the region. This will require continued program planning and program review procedures to ensure the appropriateness of programs to changing processes and techniques in industry.

Industrial-technical programs requiring a high degree of specialization might continue to be offered as three-year programs. But the third year of training suggested could well constitute a retraining and upgrading program for graduates from the technologies who have entered the labour force and wish to return for further training. These programs would need to be highly personalized and designed to bring the individual's knowledge and skills into closer

congruence with his work. Industrial management, personnel management, and quality control might constitute suitable areas of development for such third year programs.

The medical-dental technologies form another major area for program development. Reference to Figure 4 indicates that the technical institutes are designated as provincial training centres in this area of instruction. Program planning should be closely coordinated with program planning in Mount Royal College. It might prove most appropriate for students in the health services to take their generic training in Mount Royal College and transfer to NAIT for specialization in dental, x-ray, respiration, laboratory and other related technologies.

Business and administration programs offered in SAIT might appropriately be phased out or transferred to Mount Royal. Instructional facilities thus vacated might be converted to laboratory space thereby increasing the student capacity of the institution. Programs relating to tourism and the hospitality industry might be operated jointly by SAIT and Mount Royal in order to utilize the food services facilities at the institute. Transfer of the business and administration programs to Mount Royal will require transfer of faculty in a just and equitable manner.

Another area where cooperation will be necessary between SAIT and Mount Royal relates to the role of the Alberta College of Art. This department should remain as an integral part of SAIT. Mount Royal's role in the arts might appropriately be

limited to music, speech, and theatre arts, while the College of Art might specialize in painting, sculpture, and ceramics.

Communications technologies should form another major area of emphasis for SAIT. Joint programs might be offered by SAIT and Mount Royal with the latter institution focusing on such areas as journalism and broadcasting only. Programs associated with the operation of communications equipment would appropriately fall within the institute's role.

Vocational and apprenticeship training should continue to be a major role for SAIT. Present offerings in apprenticeship trades should continue to reflect manpower demands. However, appropriate measures will be required to ensure that entry into trades areas is not unduly restricted by the interests of trade organizations. Correspondence programs might be complemented by media instructional packages where these are found to be appropriate.

The continuing education services which are already well developed in the institute should continue to reflect the needs and interests of the service region.

red deer college (1971 enrolment: 893)

Operating under affiliation agreements with the University of Alberta, this college offers first-year programs for admission to more than ten faculties and schools. Second-year programs are provided for transfer to five faculties, and preprofessional

programs are provided in dentistry, medicine, and veterinary medicine. Over fifty percent of the students are enrolled in university transfer programs.

Two-year diploma programs are offered in arts and science, business administration, secretarial science, nursing, and social services. Certificate programs are provided in business and secretarial science.

Academic upgrading is confined to high school preparatory and equivalent courses required for entry into university transfer and professional programs.

Continuing education programs are similarly confined to evening credit courses in the above programs. General interest non-credit courses include animal breeding, first aid, defensive driving, judo, and courses in small business operation. An Institute of Canadian Bankers' Program is designed to meet requirements for the ICB Fellow's Diploma.

Reference to Figure 4 indicates need for extensive program development in Red Deer College. Current offerings provide only a narrow band of the programs and services normally offered in a comprehensive institution. Resource allocations in the college similarly reflect an imbalance in favor of academic and university transfer studies.

While emphasis should continue to be placed upon the university transfer function, extensive program development is necessary to extend program offerings into first year industrial

technologies, arts and music, community services careers, and home economics. Upgrading, vocational and apprenticeship programs similarly require development as does the continuing education and community services function.

The health services area could be further developed to include generic programs transferable to Grant MacEwan Community College or NAIT for specialized studies. An appropriate area of specialization for this college might be in the training of mental health workers.

Limited development in the industrial technologies is suggested with provision for students to transfer to an institute of technology for completion of the second year of study.

Community service programs could include a variety of modular units of study arranged thematically to relate to such matters as community problems, family life, and environmental protection.

Music, drama, painting, and ceramics should be developed both as college programs and as community services.

Another area for program development might be in the preparation of teacher aides and learning assistants. This could be done in conjunction with the suggested limited development of the communications program area.

Although programs in agriculture are not included in the role of this college, provision should be made for core programs and courses transferable to Olds Agricultural and Vocational College.

Future resource allocations in this college should reflect an increased emphasis on the development of a comprehensive range of program offerings. The continued growth of Red Deer College as a viable institution is highly dependent upon its ability to implement the community college philosophy of providing training and education for students of a wide range of interests, aptitudes, and types of intelligence. It can do this only by assessing the needs of its students, community, and region and by developing appropriate programs to meet these needs.

olds agricultural and vocational college (1971 enrolment: 366)

The Olds College offers three-year agricultural programs at the technologist level and two-year programs at the technical level. It also provides vocational trade programs, vocational preparatory programs, and continuing education programs for upgrading, retraining, and general interest. In general, the programs are related to agricultural production, agricultural business, and agricultural service.

Relationships are maintained with the universities, technical institutes, colleges, and apprenticeship training to ensure transferability of significant portions of programs.

Reference to Figure 4 indicates that Olds should be maintained and further developed as an agricultural college training people in farming, farm management, and marketing of farm products.

Its major role lies in the provision of programs in the agricultural technologies and in providing specialized programs beyond the first year. Students from colleges and technical institutes might be expected to transfer to Olds for second and third year programs and for the field application of skills and knowledge.

Similarly, students completing the first year of the liberal arts program in Olds could transfer to Red Deer for completion of the second year. Students completing the three-week survey school might transfer to a technical institute for further training.

The fashion merchandising technology program might more appropriately be offered in a technical institute. However, Olds should retain a one year program in this area with provision made for students to transfer to a college or technical institute for completion of the second year of study.

Academic upgrading and retraining programs should continue to be provided as required and offered in conjunction with other continuing educational programs. Agricultural extension services should be provided in cooperation with the provincial Department of Agriculture.

In essence, Olds College would become a provincial centre for specialized training in agriculture with major emphasis on production, management, and marketing technologies.

grant macewan community college
(1971 enrolment: 531)

This college, which began operations in 1971, has concentrated program development in the areas of health services, communications, community service careers, general arts and science, business and administration and continuing education.

Health services programs include nursing, medical equipment technology, psychotechnology, child care, and social work.

The communications program area is reasonably well developed with programs concentrated in journalism, advertising and public relations.

Business and administration programs have concentrated in specialized secretarial training for legal, medical, bilingual, executive, and scientific-technical secretarial careers.

Administration programs include accounting, general and public administration, and marketing.

Canadian studies, general arts and science, and horsemanship programs add to both the academic and general interest program offerings.

Community service career programs are provided in law enforcement, library and fashion sales technologies, instructional assistance, and recreation and outdoor education.

Continuing education programs are offered for college credit and general interest.

Future program development in Grant MacEwan Community College will require close coordination with NAIT. Adult and continuing education programs will similarly require careful coordination with programs offered under the jurisdiction of NAIT, the public school system,

parks and recreation, and other agencies.

Reference to Figure 4 delineates service areas consistent with the view that public colleges should be comprehensive institutions and that technical institutes should be adaptive institutions specializing in the scientific technologies.

However, in areas such as communications, provision is made for retention of the communications technologies in NAIT and for retention of the production side of the communications program area in Grant MacEwan.

A selected first year university transfer function is proposed to provide access to universities to students through combined preparatory-transfer programs. At the same time, it is proposed that Grant MacEwan Community College extend this service to Vermilion College and to the Forest Technology School. This procedure would permit efficient staff and facility utilization in providing similar but limited transfer programs to a very broad geographic area. In addition, this arrangement will permit Grant MacEwan College to undertake the development of modular study units to be "delivered" through the mass media or by other appropriate means.

Health and allied services in Grant MacEwan should be expanded as a major area of specialization. Programs for hospital nursing, community health care nursing, nursing aides and orderlies, medical assistants, hospital management, rehabilitation therapy, geriatric care, and for other related services might be developed to provide specialized training for transferring

students as well as for complete training within the College.

Business and administration should constitute another major area for program development. Labour relations technologies, supply logistics, and a variety of similar programs related to industrial development could be developed in conjunction with existing secretarial, merchandising, and administration programs. Management programs related to the hotel, motel, tourism and recreation areas should be developed jointly with NAIT in order to take full advantage of food services facilities and training programs. Business and administration programs currently offered in NAIT should be transferred to GMCC.

Arts and music programs should form another major area for development. Since few programs of this nature exist at the non-university level, programs in this area could fulfill the needs of various "communities" surrounding each campus as well as serving the needs of the total service region.

Community service careers could include specialized programs in police and fire science. Paraprofessional training programs for legal aides, teacher aides, and community social workers might also be developed. Other program areas such as correctional services, environmental control, recreation, urban planning, and community leadership similarly require development.

Upgrading and vocational programs should be

provided through incorporation of AVC Edmonton into the college. These programs should continue to be relatively short and employment oriented but at the same time should make adequate provision for students to re-enter into post-secondary education without unnecessary repetition.

Extensive program development is required to provide educational services for the culturally, economically, and socially disadvantaged. Identification of the educational needs of residents in the Boyle Street area could well form the beginning of program development. Projections of future increases in numbers of native people in the city suggest that concerted effort should be made to develop appropriate programs for this sector of the population.

Continuing education programs might focus on the needs of the culturally and educationally disadvantaged, upon thematic studies related to community problems as well as upon providing credit and general interest programs.

The current Grant MacEwan Community College pilot program in self-study deserves particular attention and evaluation for the insights it might provide into individual needs, modes of instruction, and cooperative program development.

northern alberta institute of technology
(1971 enrolment: 3,627)

NAIT provides an extensive range of programs, many of which are quite similar to those offered

by SAIT. However, program development appears to have concentrated more upon the industrial engineering-related technologies and less upon such areas as the arts, community services, careers, and communications careers.

Twenty-four of the programs offered by NAIT fall within the industrial technology definition. These programs are of one and two year duration and range through refrigeration, architectural engineering, automotives, chemical technology, computer technology, electricity and electronics, resource development, forestry, construction, photography, plastics, and a number of other areas.

The health services program area is similarly well developed with eight programs offered in the medical-dental technologies.

Four programs are offered in the business and administration program area with emphasis on secretarial training, merchandising, and management.

Home economics programs centre on food preparation and sewing. Only one program, radio-TV arts, is offered in the communications area.

Continuing education services cover a broad spectrum including courses in trade and technical upgrading, evening credit for regular programs, and general interest and information courses. In addition, special courses are offered to meet the needs of specific industries as requested.

Reference to Figure 4 indicates that NAIT should

continue its specialized role in industrial technology, vocational and apprenticeship training.

Future program development should concentrate upon technologies related to petroleum exploration and processing, transportation and supply, communications, environmental quality control, resource development, and medical-dental services. Training and education in these areas might emphasize the specialized technological aspects particularly in programs designed to receive second-year students from other institutions. Cooperative program development would seem appropriate with AVC Fort McMurray, Vermilion College, Grande Prairie College, and the Forest Technology School. Third-year programs in selected areas might be developed to provide further educational opportunity for graduates of two-year programs.

The medical-dental technologies might be expanded to include two-year programs in dental technologies currently offered by the University of Alberta. Cooperative program planning between NAIT and Grant MacEwan College will be necessary to ensure that generic program elements form an interinstitutionally transferable base. Students specializing in dental technologies, x-ray, and laboratory services would complete training programs at NAIT while those specializing in nursing care, community health services, hospital nursing and other similar areas would complete programs at GMCC.

Similar cooperative arrangements will be

necessary in the communications program area. Programs such as journalism, advertising and broadcasting might be offered by GMCC and programs emphasizing the technological aspects of communications should be developed by NAIT.

The business and administration program area might appropriately be transferred to GMCC with provision made for just and equitable transfer of staff. Release space would thereby be available for conversion to technology laboratories as required.

Apprenticeship training programs should form a major program area for NAIT. Comments made earlier with regard to this area of service for SAIT apply here as well.

Continuing education services should continue to be developed in cooperation with other agencies. These extensive offerings should continue to reflect the interests and needs of the service region.

forest technology school (1971 enrolment: 30)

This school is presently operated under the jurisdiction of the Department of Lands and Forests to provide educational services in forestry and conservation. Its programs are designed to provide technical training to forest officers and park wardens and to provide specialized training in forest fire control. A forest technology course is offered in conjunction with NAIT. Students complete the first year of this program in NAIT and transfer to the Forest Technology School for completion of the second year which involves the

practical application of skills in a natural setting. The location of the Forest Technology School in Hinton provides an ideal setting for environmental education, resource management, and reclamation science. The natural environment is well suited to programs which stress the field application of techniques in resource management and related fields of study.

A variety of educational experiences could be drawn from oil and gas production, transmission and processing; pulp, paper and logging operations; coal extraction and processing; thermo and hydro electric power production; farming and ranching; and recreation and tourism. All of these economic activities are located in the Jasper-Edson region in close proximity to the Forest Technology School.

Cooperative programs in resource management, reclamation science, and environmental education might be developed jointly between the Northern Alberta Institute of Technology, Grant MacEwan Community College, and the Forest Technology School. These programs could be based on a generic or core first year or first semester which is offered in each institution. Experiences in the field application of techniques could be provided by the Forest Technology School as a second year or semester.

Figure 4 indicates that this school could serve as a satellite to Grant MacEwan College for selected university transfer and college transfer programs. This arrangement would extend community college services to the west central region in an

efficient manner until such time as the regional population is sufficiently large to support a community college.

Current programs offered should be continued and expanded to include additional inservice training for personnel in the forest services, the pulp and paper industry, and in resource management occupations.

Academic upgrading and continuing education programs should be extended on a modular, thematic basis to meet community needs.

vermilion agricultural and vocational college (1971 enrolment: 176)

This college offers a variety of programs in the arts and social services, life science technologies, and physical science technologies. Continuing education programs include day and evening courses in general interest areas, business management, and vocational preparation.

The scope of program offerings in this college suggests a distinct move towards the provision of a comprehensive range of programs.

Reference to Figure 4 indicates that this college should continue to broaden its program offerings to include selected university transfer, industrial technology, and vocational programs.

However, in order to avoid inefficiencies which might result from low enrolments in university transfer and other community college programs, it is proposed that this college operate as a satellite of Grant MacEwan Community College.

Instructional staff and program development in these areas would be provided to both Vermilion College and the Forest Technology School by Grant MacEwan College thereby reducing the likelihood of high unit costs in these program areas.

Program development in the industrial technologies should be limited to the first year of selected programs with provision made for students to transfer to a technical institute for completion of the second year of study. Similarly, the agricultural technologies should be limited to one year programs with provision made for students to transfer to Olds College for specialized study beyond the first year. Programs currently offered in the life and physical sciences technologies might be reviewed and compressed into a first year core program.

Vocational and career programs currently offered should be continued and might be expanded to include additional programs in business and management, recreation, and building maintenance and trades.

Continuing education programs should be expanded to include thematic studies related to community problems and needs. The college could also serve as an extension centre providing agricultural extension services in cooperation with the Department of Agriculture.

In essence, Vermilion College should form the nucleus of community college services for the east central portion of the province. Concerted efforts will have to be made to develop programs which

fulfill the needs of surrounding communities to the north, east, and south.

avc fort mcmurray (1971 estimated headcount enrolment: 550)

The Alberta Vocational Training Centre, currently operating out of temporary facilities in the town of Fort McMurray, provides a variety of programs in technical-vocational and upgrading areas.

Technical-vocational programs include automotives, building construction, career driving, heavy equipment operation, carpentry, welding, and pipe trades.

Academic upgrading and trade-level upgrading programs are also provided both as regular training programs and as continuing education programs. Sewing, first aid, ceramics, native crafts, welding, and small engine repair form the major portion of the continuing education program.

Business education, retail sales, and cooking form the bulk of community services occupational programs.

The future development of avc Fort McMurray as recommended is highly contingent upon the development of extensive oil extraction operations centered upon Fort McMurray as a service community. Should such development occur, then the role and service parameters outlined in Figure 4 could be considered as a minimal provision of post-secondary services.

The major role for this institution as a vocational-technical college lies in fulfilling the

manpower needs of the oil extraction industry and related service industries as well as the needs of the community and surrounding region. To fulfill this role, programs will need to focus upon academic upgrading, technical-vocational training, and community service occupations.

Upgrading programs should be developed to enable the native population of the north-east portion of the province to engage in vocational and career training and thereby to fulfill some of the manpower needs of the related service industries and businesses.

Technical-vocational programs might be expanded to include training for dragline operations, transportation, pipeline construction and maintenance, warehousing, power technology, supply logistics, and building trades. Appropriate provision should be made for students to transfer to NAIT for completion of the second year of study and for specialized training in petroleum technologies.

Training for community services occupations might include custodial services, business and administration, food services, and welfare services.

Continuing education services should emphasize the upgrading element as well as focus upon such areas as community problems, environment conservation, music, arts, crafts, sewing and recreation.

If population growth occurs as projected, additional program areas might be added as

required. But until there is assurance of industrial development, programs and services should be provided within the specified role and service parameters outlined in Figure 4.

grande prairie regional college (1971 enrolment: 319)

This college provides programs in two major areas. Operating under an affiliation agreement with the University of Alberta, the college provides first-year university transfer programs, some of which include approved course selections for transfer to second and third year programs. These programs are designed to provide admission to more than fifteen faculties and schools. Approximately fifty percent of the students are enrolled in university transfer programs.

Certificate and Diploma programs in secretarial science and in business administration form the second major program area.

Adult upgrading programs are offered as academic preparation for admission to programs in business, technical or university education. In addition the college fulfills a community and regional service function by offering a variety of short courses at the college and at other centres in the region.

The college also sponsors a symphony orchestra, a concert band, and a mixed chorus. These, along with physical education activities, constitute the major student-service programs in which students

and members of the community are encouraged to participate on a non-credit basis.

Reference to Figure 4 indicates an expanded role for Grande Prairie College to include second year university transfer as well as intensive concentration on the development of first-year technology programs, health and allied services programs, business and administration, arts and music, community service careers, home economics, upgrading, vocational, and apprenticeship programs. Programs for the culturally and educationally disadvantaged and continuing education and community services require similar expansion.

The development of second-year university transfer programs might proceed once enrolment reaches the 500 student mark. Introduction of these programs earlier will result in either further disproportionate resource allocations to the academic areas or to students being severely limited in their choice of courses for second year programs.

Immediate action should be taken to develop first year programs in the industrial technologies using facilities of the Fairview Agricultural and Vocational College. Programs related to the needs of the pulp and paper industry currently under development will likely include building trades, plant operators, electricians, plumbers, forest technicians, resource management technicians, and mechanics to mention only a few. All such programs should be limited to the first year of study with provision for transfer to NAIT for

completion of the second year of study or to the Forest Technology School for the practical application of skills in such programs as resource management and reclamation science.

Health and allied services might include first year generic programs transferable to Grant MacEwan or to NAIT.

Community service careers should focus on resource management and development, conservation, outdoor education, recreation, social services, and hospitality-related services.

Programs for the culturally and educationally disadvantaged should be a major endeavor for this college. Industrial development in the north is bound to displace the economic base of native residents. Academic upgrading, vocational, and apprenticeship programs might form the beginning of program development in this area but intensive effort will be necessary to develop programs suited to the unique needs of the residents of the region.

An additional role for Grande Prairie College lies in extending its university transfer programs on a selective basis to the Fairview Agricultural and Vocational College. Similar extension is suggested for selected career programs and other programs suited to the needs of the residents of the Fairview region.

fairview agricultural and vocational college (1971 enrolment: 100)

This college offers a number of programs in

agricultural technologies, secretarial science, diesel mechanics, and apprenticeship.

Major emphasis has been placed upon development of programs in the agricultural technologies, diesel mechanics, and apprenticeship. Two-year programs are offered in farm management, crop production technology, livestock production technology, and agricultural mechanics technology. One year programs are provided in diesel mechanics, heavy duty mechanics, and welding. Certificate programs are offered in clerical and secretarial areas.

Adult upgrading programs are offered for college and university entrance. Short courses and night classes constitute the continuing education services which are provided.

The future of Fairview College is highly dependent upon its relationship to Grande Prairie College. Reference to Figure 4 indicates an expanded role for the college as a satellite of Grande Prairie. Selected courses in university transfer and career programs could be provided by the Grande Prairie College staff with appropriate transfer arrangements made for completion of the first and second year in Grande Prairie.

A major role for the Fairview campus lies in its being utilized by the Grande Prairie College as a training centre for the first year industrial technology programs. The agricultural technology programs might be reviewed and compressed into a first year core program with provision for

students to transfer to Olds for completion of the second year of study.

Upgrading, vocational and apprenticeship programs should be extended to include programs for the culturally and educationally disadvantaged. Native education and intercultural programs might be developed in conjunction with continuing education programs currently offered and proposed.

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PROGRAM DEVELOPMENT AND INSTRUCTION

The identification of community and regional needs and the development of instructional programs are functions which can be performed most efficiently and effectively at the institutional level of the system. Similarly instructional procedures are the primary concern of professional faculty rather than of a coordinating agency. However, the following were among the issues and problems having system-wide implications for program development and instruction which were examined during the Master Planning Project. These issues are briefly discussed in this chapter and recommendations for action are proposed.

- ☐ Program Development.
- ☐ Program Review Procedures.
- ☐ Core Program Elements.
- ☐ Cooperative Programs.
- ☐ Performance Objectives.
- ☐ Self-Study Programs.
- ☐ General Education as a Program Component.
- ☐ The University-Transfer Function.
- ☐ Preparation of Social Workers.
- ☐ Preparation of Nurses and Health Services Workers.
- ☐ Alternative Instructional Modes.

☐ program development

The primary responsibility for program development and for securing approval lies with

the local institution. However, institutions have encountered major difficulties in securing and allocating sufficient resources to the area of need identification and program development. The result has been that smaller institutions have tended to develop programs in areas previously developed by other institutions. For example, the smaller public colleges have tended to focus resources on the development of university transfer programs to the exclusion of the development of career, vocational and upgrading programs. Similarly, few institutions have successfully developed programs to meet the needs of the educationally and socially disadvantaged, of the handicapped and the aged, and of those people who have not historically availed themselves of post-secondary educational services. Although there are notable exceptions to the above statements, in general they are descriptive of the current situation.

The following recommendations are designed to remedy the institutional problems in program development and at the same time facilitate program coordination at the provincial level.

RECOMMENDATIONS

39. That each institution establish and maintain a program planning and research capability designed to assess community and regional manpower and client needs and to develop appropriate programs within the scope of its assigned role and service parameters.
40. That each institution, upon approval by its

board of governors, register its intent to investigate a program area for development.

41. That a central program registry be developed to monitor program development and ensure that institutions function within specified roles thereby avoiding unnecessary duplication of program development activities and program offerings.
42. That institutional requests for approval of new programs be considered in light of the nature and intent of curriculum, cross-utilization of courses, clientele to be served, occupational opportunities for graduates, and projected implementation costs.

☐ program review procedures

The need for systematic program review procedures is difficult to dispute. Even a cursory examination of curricular offerings within programs suggests that course offerings have grown exceedingly numerous. Closer examination through comparison of content and concepts to be developed reveals remarkable similarities among many courses.

It appears that much of this type of course proliferation has resulted from efforts to meet individual student needs, and from the built-in tendency for faculties to perpetuate and enhance program offerings. Once programs have been approved, there appears to be little control over the number and breadth of courses which an institution may offer under the "approved program" umbrella.

While the need for variety of choice of content and instructional modes within programs is obvious, a strong case can be made for regular reviews by which courses and programs of marginal utility are discontinued to make room for courses and programs of a more vital nature.

RECOMMENDATIONS

43. That systematic procedures be developed to eliminate programs and courses whose costs are excessive, those which are no longer needed in terms of program objectives, and those which unnecessarily duplicate the offerings of other institutions.
44. That institutions be encouraged to conduct continuing follow-up studies to determine the effectiveness of existing programs in meeting client, community, and manpower needs.

☐ core program elements

It became evident during the costing study conducted as a part of the planning project that certain departments in each institution performed a service function for various programs. It was also noted that there seemed to be an automatic assumption that programs at different levels, i.e., transfer, career, diploma, and certificate, necessarily required different courses. This situation was particularly evident in the relationship between general arts and science transfer programs and general arts and science diploma programs. There seemed to be very little cross-utilization of courses between similar programs at different levels.

This situation is understandable in view of the requirements placed on college transfer programs by the universities and in view of the fact that the course material is taught at different levels. However, the possibility of increased cross-utilization of courses between programs, with the adaptation to student level occurring at the student-instructor interface rather than by proliferation of courses, should be examined by each institution.

Figure 5 conceptualizes the core program idea as it might apply to a post-secondary institution.

Figure 5 suggests that a common service core of courses could be developed for all programs and that additional courses could be common to one or more program areas or to one or more specific programs within a program area.

However, the use of core program elements is not suggested here so much for its value in promoting efficient use of resources. It is suggested more for its value in emphasizing the need for personalization of instruction within courses and for its usefulness in facilitating the development of a career ladder whereby individuals could continue to upgrade their educational qualifications or shift to a related career after or during periods of employment without having to repeat content unnecessarily.

RECOMMENDATION

45. **That wherever possible, core or generic program elements be developed to avoid duplication of instructional effort and to facilitate a career ladder organization of**

programs whereby students may move upward, through, or across various related occupations and careers without unnecessary duplication of content.

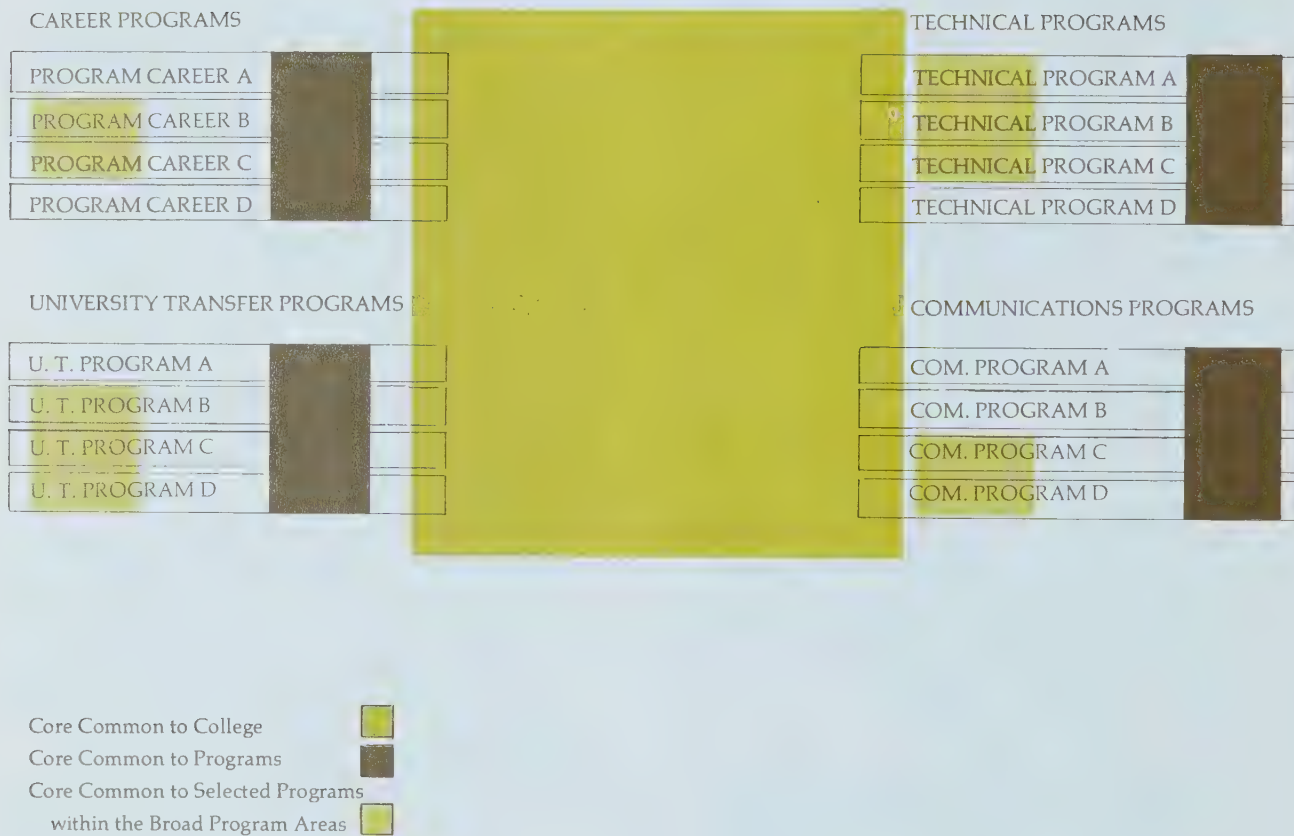
☐ cooperative programs

Traditionally, post-secondary institutions have not found a serious need for the development of programs jointly offered in two or more institutions. Once a student enrolls in an institution, he normally is provided the total program package by that institution. However, cooperative programs are not really innovations. University transfer programs represent a type of sequential cooperation between colleges and universities. Apprenticeship programs sandwich theoretical knowledge between periods of practical training and experience. Cooperative program development between the Forest Technology School and NAIT produced a jointly-operated program in forest and natural resources technology.

It seems reasonable to anticipate that increased cooperation among and between institutions will become necessary particularly in situations where more than one institution operates within the same centre. In such areas, cooperative programs could readily be developed in which students are provided specific program elements by different institutions. This may involve having students attend different institutions where specialized facilities are available or in some cases the use of joint staff appointments.

Figure 3

CORE PROGRAM ELEMENTS



RECOMMENDATION

- 46. That institutions be encouraged to enter into cooperative arrangements for the provision of instructional services and for the use of capital equipment and facilities.**

□ performance objectives

The delivery system for post-secondary education generally requires that all students seeking a particular credential attend an institution for a predetermined period of time. The time constraint normally is imposed regardless of the student's knowledge and experience unless of course this knowledge and experience was gained through attendance at another institution.

Although there are exceptions in which students are granted advance credit and others in which special arrangements are made for students demonstrating particular talents and skills, these cases are relatively few. The majority of students proceed through the normal requirements until enough hours and classes have been accumulated to graduate.

RECOMMENDATION

- 47. That program objectives, stated in terms of observable and measurable performances be developed for skill subjects and occupations, and that students be permitted the option of securing credit by examination on the basis of these objectives.**

□ self-study programs

In efforts to meet the educational needs of students not wishing to undertake full-time attendance in an institution, a number of study arrangements have been developed and used with varying degrees of success. Correspondence courses, evening credit courses, compressed or short courses, and televised instructional programs are some of the arrangements which have proved successful.

A more recent approach, currently under development in Grant MacEwan Community College involves a self-study program which allows the student to work independently of the curricular structures and physical facilities of a single institution.

The program will encourage the student to select an area of interest relevant to his individual needs. In consultation with an instructor, the student then will specify the outcomes which he expects will result from his study efforts and will identify the kinds of educational experiences he proposes to undertake. These experiences likely will range through attendance at classes in various institutions to studies and projects undertaken entirely outside of the formal institution.

The implications of this type of program for institutions are extremely difficult to identify. Certainly instructional staff will need to function as coordinators in order to ensure students access to the experiences they might require. This will involve liaison with other institutions, business

and industry, government agencies, and resource personnel. The problem of interinstitutional instructional fees might have to be resolved as will the problem of evaluating the student wishing college credit for his work.

However, the implications of self study for students are somewhat more evident. Since the program will focus attention on the student as a self-directed learner, it will allow him to choose the form and content of his education. Because it will not be bound to the time and place constraints of an institution, the program will extend educational opportunity to a broad spectrum of people. In the final analysis, self study programs may provide another avenue of access to post-secondary education for adults who are motivated to learn but are not able to attend a post-secondary institution on a regular basis.

RECOMMENDATION

- 48. That non-institutional study programs be developed to meet the needs of adults not wishing to undertake full time attendance in an institution, and that these programs permit maximum self-direction in determining the nature and content of study.**

General education as a program component

Throughout this plan, reference has been made to an underlying humanistic philosophy which recognizes that man is capable of continual improvement through experience and education.

Education is viewed as a means for social reconstruction and improvement through the improvement of individuals. Adoption of this philosophy obligates institutions to provide at least two varieties of education. One is specific, structured, and vocationally oriented; the other is general, largely unstructured and aimed at enhancing the personal and social effectiveness of the individual through a conscious and deliberate attempt to relate man to his environment.

If the general education component is to enhance significantly the personal and social effectiveness of the individual, it must be basically pragmatic and directed toward the individual needs of the student rather than only toward his intellectual development. It should not be concerned necessarily with the transmission of a culture or with the mastery of an academic discipline. General education should consist of a set of educational experiences which fulfills the emotional, personal, and social needs of the individual by enabling the student to develop basic understandings of the principles underlying man's behavior and actions. It should consider the interrelationships among such factors as economic growth, limited resources, increasing population, growing industrialization, political ideologies, personal and social values, and the deterioration of the natural environment.

The need for this type of a general education component is high-lighted by Willis W. Harman in his paper entitled "Contemporary Social Forces and Alternative Futures." Harman suggests that

students may tend to view contemporary social and political science as being dominated by mechanistic, quantified, scientific, and technologizing points of view. Students consider imperative a new attention to inner experience and to an ennobled image of man. Present student concerns with awareness expanding activities are intimately related to demands for a person-centered rather than a scholarship-centered education, and for a society adapted to transcendental man rather than economic man.

If Harman's assessment of student concerns is anywhere near correct and if it can be agreed that individual material well-being becomes increasingly unattainable unless there is also social well-being, then there appears to be sufficient evidence to require that a general education component be made available to all post-secondary students.

RECOMMENDATION

49. That provision be made for the inclusion of a general education component in instructional programs and that the nature and extent of general education within programs be determined by institutions on the basis of the following principles:

- (1) General education should be provided on an elective basis.**
- (2) It should contribute to the personal development and social functioning of the student.**

(3) It should emphasize man's interrelationships with man and with his total environment.

(4) General education curricula should be dynamic rather than static and should not be tied to mastery of a specific discipline(s).

(5) It should require only short time commitments from the student. (Perhaps a modular, problem-centered series is more suitable than is a full course).

the university transfer function

Much has been said about the value of university transfer programs as means for extending post-secondary educational opportunity to residents of communities and regions which do not have a university centre. Combined preparatory and transfer programs have permitted students to complete university entrance requirements and at the same time undertake selected university-level courses. By undertaking university studies in a community college setting, students have had the advantage of living at or near home, of studying in a smaller person-centered institution, and of lower instructional fees. In addition, the academic status of the community has been enhanced by the university-transfer function.

But university transfer programs have also had dysfunctional effects upon institutions. The affiliation arrangements under which transfer programs have operated have permitted universities to exercise control over the nature and

content of curriculum and over the qualifications and conditions of employment of instructors. Furthermore, these arrangements have tended to determine college resource allocations by specifying minimum staff requirements and even the organizational structure and administration of the department offering transfer programs.

Perhaps a more serious problem associated with the university transfer function is that professional faculties have tended to organize institutions in discrete departments based on the academic disciplines and to adopt the university model for instruction. Faculty interest tends to favour rounding out transfer programs, increasing the number of options, enhancing the academic flavour of the institution, and perhaps subconsciously attempting to emulate the comprehensive university.

As this occurs, the transfer function assumes increasingly greater status to the extent that the institution may have difficulty in allocating resources to the more mundane career and vocational programs. Such a situation places the concept of a community college as a comprehensive institution in jeopardy.

In order to ensure that colleges continue to develop as comprehensive institutions providing a broad range of educational opportunities, it is proposed that the coordinating agency exercise some measure of control over the direction which institutional program development takes.

RECOMMENDATION

50. **That in institutions where university transfer programs are offered, the institution be required to maintain at least an equal balance of university transfer students to students in other career, vocational, and upgrading programs, and that institutional resource allocations reflect at least a similar balance.**

☐ preparation of social workers

Occupational shifts within the labour force, population shifts to urban centres, increased population densities, changing life styles, and increased incomes are but a few of the forces which portend increasing demands for social services and for social workers to deliver these services.

In view of these projected increased demands for social workers, it might be anticipated that significant numbers of these people will need to be trained at the non-university level. However, data currently available from studies in the area of social service education present conflicting views as to the adequacy of training which is currently being provided. One report indicates poor job prospects for college graduates because their training is not adequate and their consequent status low. The report also suggests that the complexity of the social worker's job requires periods of training longer than the two year college programs.

While it might be concluded that social services can benefit only minimally from the use of college trained aides, another quite reasonable conclusion might be that better job descriptions and a more thorough analysis of the social worker's responsibilities could identify areas in which the college graduate could provide service.

The fact that there is an increasing demand for technicians, aides, and lay personnel in psycho-therapeutic and counselling situations suggests that it might be possible to structure social welfare teams consisting of personnel at different levels of training and specialization.

Further evidence to support this point of view is provided by Carkhuff (1969) who, after reviewing research in hospitals and graduate schools, concluded that the non-professional worker appears to have a greater ability to form the human link between society and the person in need of help.

In view of this kind of evidence, it seems inconceivable that social work is one area where only the highly trained professional can render useful service.

RECOMMENDATIONS

51. That consultation be undertaken with agencies providing health and social services to determine future manpower needs with a view to developing a comprehensive training model for the preparation of personnel.
52. That during the interim period, public colleges involved in training social services

personnel request from prospective employers detailed job descriptions for future program graduates and, wherever feasible, develop appropriate training programs.

☐ preparation of nurses and health services personnel

The health services sector is subject to much the same demand for increased services as is the social services sector. The demands are so similar and the services required so interrelated that the continued use of separate systems of delivery is being subjected to serious question. This may well lead to the future use of community health-social worker teams.

Within the combined fields of mental, medical, and dental health, there are continuing pressures for the development of an integrated health services system. Here again, the use of health service teams may come to be viewed as the most efficient and effective means for delivery of health services.

But the effective functioning of a team of any kind is not something that can be legislated or caused to occur merely by putting people together. What appears to be needed is a comprehensive training model for health services personnel which not only provides general and specialized training for students but which also provides them the opportunity to learn how to work with other members of the team.

RECOMMENDATIONS

53. That all nursing and allied health programs at less than the baccalaureate level currently provided by hospital schools of nursing and by other government departments and agencies be transferred to the advanced education system.
54. That in cooperation with the Department of Health and Social Development, a comprehensive training model for the preparation of health services personnel be developed.
55. That Mount Royal College and SAIT be recognized as comprehensive health services training centres for the southern portion of the province and that Grant MacEwan Community College and NAIT be recognized as comprehensive health services training centres for the northern portion of the province.
56. That in both provincial centres, generic program elements be developed and offered on a joint basis so that students from each institution are provided the opportunity to work with students in other areas of specialization.

alternative instructional modes

Although instructional matters are primarily an institutional concern, there is evident need for leadership in the improvement of instruction through the development of alternatives to the traditional and still most common

lecture-recitation mode. Attritions in student enrolments through early withdrawals and failures to complete graduation requirements may be, in part, attributable to student indecision and unrealistic expectations. But it is difficult if not impossible for post-secondary institutions to escape the criticism that they cater to the instructional needs of those students who have demonstrated their ability to learn by traditional means. As has been previously suggested, post-secondary institutions have yet to take up the challenge of devising instructional modes which are congruent with the learning styles and capabilities of individual students.

A number of instructional modes have already been either implied or suggested in foregoing sections dealing with cooperative programs, self-study programs, performance objectives, and general education. However, several other approaches can be identified for further study by institutions:

- (1) Self-referral reading centres.
- (2) Cognitive mapping.
- (3) Bio-feedback training.
- (4) Multi-media instruction.
- (5) Peer and peer group instruction.
- (6) Modular learning units.

Another approach, currently being developed by Mount Royal College, places particular emphasis on the use of instructional media in individualized programs of instruction. The approach involves specifying performance objectives and designing

individualized study programs. The instructor's role is to identify and develop learning resources; to provide motivation, guidance, and instruction; and to manage the learning system.

RECOMMENDATION

- 57. That institutions be encouraged and assisted in developing alternative instructional modes, and in resolving problems in teaching, learning, and evaluation.**

PLANNING PROJECT REFERENCES FOR CHAPTER 7

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trends in enrolments

The decade of the 60's was a period of unprecedented growth in the post-secondary educational sector. Enrolments in universities grew from 7,000 full-time students in 1960 to almost 29,000 in 1970. During this same period technical institutes increased enrolments from 1,400 to 6,400. Apprenticeship training students increased from 2,600 to 8,800, and enrolments in agricultural and vocational colleges increased from 350 to 980. Public colleges, which first reported enrolments in 1964, grew from 490 students to over 5,000 students in the space of six years. Similarly, enrolments in Alberta vocational training centres increased from 700 in 1965 to 3,700 students in 1970.¹

In contrast, the decade of the 70's began with a reduction in rates of growth particularly at the university level where most institutions experienced a shortfall in enrolments for 1970 and 1971. As a result, the post-secondary system has tended to shift emphasis from unlimited expansion of enrolments and expenditures to controlled growth and consolidation of services. Although there is ample demographic data to suggest that continued growth should occur, the fact remains that proportionately fewer people have elected to enroll as full-time students in universities.

While it is highly probable that a resurgence of growth will occur, the current situation has given

¹Estimates of full-time and part-time enrolments.

good reason to suggest that this is an appropriate time for post-secondary education to review its services and to carefully plan for capital development in order to ensure that the system does not expand beyond the demand for services. This is not to suggest that enrolments will not or should not increase. Even if the current level of service is to be maintained, the sheer force of population growth will necessitate that provision be made to accommodate at least 65,500 full-time students by 1980 as compared with the 1971 enrolment of 42,100.

If such factors as improved economic conditions, technological advances requiring highly trained personnel, increasing demands for publicly-supported services, increasing access to post-secondary education, and changing attitudes toward the work ethic have a significant effect upon enrolments, then the force of numbers will remain undiminished during the 70's. It might be realistic then to expect enrolments to reach the 80,000 mark by 1980.

minimum enrolment objectives and projections

The Master Planning Report centered considerable attention on analyses of the Alberta population on both a regional and provincial basis. Enrolment projections were developed using a variety of techniques and using several different sets of assumptions with regard to such factors as population growth, composition, and mobility; provincial policies with regard to the

level of service which will be maintained; and future enrolment ratios for the system. These population analyses and enrolment projections are reported in *Master Planning Monograph #4* and in *Master Planning Monograph #6*.

The recommendations proposed regarding enrolment predictions and system enrolment objectives are based on the following assumptions:

- ☐ The provincial population will continue to increase at a two percent rate annually, and the age 18 to 24 population will grow at a proportionately greater rate.
- ☐ The 1971 provincial enrolment ratio of 24 percent, calculated as the ratio of total full-time students relative to the population in the 18-24 age group, should be maintained as a minimum level of service to be provided. (This should not imply that post-secondary education should be restricted to that age category).
- ☐ Provision will be made to increase enrolment ratios in regions where enrolment ratios are substantially below the provincial average.
- ☐ Public colleges and technical institutes increasingly will emerge as alternatives to universities and will therefore show proportionately greater growth increases.
- ☐ As greater provision is made for continuing education services, the system will increasingly emphasize part-time participation. Part-time enrolments are not included in the projections and objectives which follow.

- ☐ No upper limits will be imposed on enrolments on a system-wide basis. While enrolment quotas may be necessary for certain programs and perhaps even for institutions, this approach essentially involves denial of educational opportunity to some of the people wishing to pursue further studies. Instead, the system as a whole will in some way accommodate demand.

RECOMMENDATION

58. That the 1971 level of post-secondary educational service be maintained by adoption of the following enrolments (Table 7) as minimum service objectives:

The adoption of a minimum enrolment base is recommended as an effective means of articulating policy with regard to the minimum level of service which will be provided. This approach permits more effective planning at the system level for capital and operating expenditures as well as for student finance commitments. Continuous monitoring of population growth and mobility, enrolment ratios, and client demand will be necessary in order to determine the degree to which additional student places are required.

Minimum enrolment objectives are also viewed as an effective means for encouraging institutions to provide the kinds of services which their clients require. Efficiency incentives may also be built into the system by relating institutional funding to enrolment objectives. A corrective factor, which permits institutions a plus or minus 10 percent margin in enrolments before operating budgets

Table 7

MINIMUM FULL-TIME ENROLMENT OBJECTIVES (BASED ON 1971 RATIO)

Year	Total Population (000's)	18-24 Population (000's)	Minimum Enrolments 24% Ratio (000's)
1971	1,629	193	45.5
1972	—	205	49.2
1973	—	216	51.8
1974	—	228	54.7
1975	—	240	57.6
1976	1,780	247	59.3
1977	—	253	60.7
1978	—	259	62.2
1979	—	265	63.6
1980	1,981	273	65.5

¹Full-time students are those enrolled in 4 or more courses or in 900 or more hours. These figures do *not* take into account part-time students.

Table 8

PROJECTED SUBSYSTEM MINIMUM FULL-TIME ENROLMENT OBJECTIVES

Year	18-24 Population (000's)	Universities ² (000's)	Technical Institutes ³ (000's)	Colleges ⁴ (000's)	Total at a 24% Ratio (000's)
1971	193	29.0	6.4	6.7	42.1 ⁵
1972	205	30.5	8.2	10.5	49.2
1973	216	32.0	8.6	11.2	51.8
1974	228	33.5	9.1	12.1	54.7
1975	240	35.0	9.6	13.0	57.6
1976	247	35.8	9.9	13.6	59.3
1977	253	36.4	10.1	14.2	60.7
1978	259	37.0	10.4	14.8	62.2
1979	265	37.6	10.6	15.4	63.6
1980	273	38.5	10.9	16.1	65.5

¹Full-time students are those enrolled in 4 or more courses or in 900 or more hours. These figures do *not* take into account part-time students.

²The university subsystem is projected at a 15% ratio for 1971 diminishing to a 14.1% ratio by 1980.

³The technical institute subsystem is projected at a constant 4% ratio.

⁴The public college subsystem is projected at a 5.1% ratio for 1972 increasing to a 5.9% ratio by 1980.

⁵This total does not include students in vocational centers, hospital based schools of nursing, nursing aide schools, apprenticeship, and in other institutions not normally considered as universities, institutes, or colleges.

are increased or reduced, could be used to diminish the crisis effects of shortfalls or unexpected growth.

RECOMMENDATION

59. That the following enrolments, Table 8, be adopted as minimum service objectives for each subsystem:

The projected enrolments are based on 1971 enrolment ratios with provision made for inclusion of the agricultural and vocational colleges, Alberta vocational centres, schools of nursing, and other special-purpose institutions in the public college system. It should be noted that proposed enrolments take only minimal account of possible shifts in student preferences. For example, if colleges and technical institutes are increasingly perceived as viable alternatives to universities, adjustments to subsystem minimum enrolment objectives may be necessary.

Enrolment objectives for the technical institute subsystem undoubtedly will require continual

adjustment since these institutions have been assigned a major role in adapting to manpower demand. Extensive industrial development may shift proportionately greater numbers from the universities and public colleges to the technical institutes.

Table 9 presents estimated institutional full-time enrolment patterns within the minimum enrolment objectives recommended for the system and subsystems. These enrolment patterns were framed taking into account:

- (1) Projected population growth within each service region.
- (2) Projected composition of the population within each service region.
- (3) Adjustments in regional disparities in participation ratios. Enrolment ratios for each region were calculated at the projected provincial rate.
- (4) Projected economic developments within service regions.

Table 9

ESTIMATED MINIMUM FULL-TIME¹ ENROLMENTS BY INSTITUTION

Institution	1971	1975	1980
Technical Institute Subsystem:			
SAIT	2,810	4,500	5,200
NAIT	3,627	4,800	5,200
AVC Fort McMurray	—	300	500
Sub Total	6.4	9.6	10.9
Public College Subsystem:			
Medicine Hat	414	400	500
Lethbridge	1,120	1,150	1,200
Mount Royal ²	2,831	4,000	5,200
Red Deer	893	900	1,000
Olds	366	400	400
Grant MacEwan ³	531	4,000	6,300
Forest Technology School	30	100	200
Vermilion	176	300	300
Grande Prairie	319	500	700
Fairview	100	250	300
Sub Total	6.7	13.0	16.1
TOTAL	13.1	22.6	27.0

¹Full-time students are those enrolled in 4 or more courses or in 900 or more hours. These figures do not take into account part-time students.

²Includes AVC Calgary.

³Includes AVC Edmonton.

The figures represent minimum enrolments which will be required to maintain the 1971 provincial enrolment ratio. Although figures have been adjusted to reflect increased participation ratios in low-ratio regions, it should be recognized that even if enrolment ratios are equalized, this does not necessarily mean that students will attend institutions located within their region. It is quite likely that students will continue to elect to attend institutions in larger urban centres. If this occurs, the minimum enrolment figures for institutions located in smaller centres may be difficult to maintain.

predicting enrolments on a continuing basis

The foregoing section dealt with minimum enrolment figures which will be necessary to maintain current participation rates in the province. It is important to note that the minimum figures suggested are in no way predictions of actual enrolments which may result. If the philosophic position relative to man proposed in this plan is to be adopted, then provision should be made for enrolments well in excess of the minimum level.

However, in the absence of complete data as to client motivations, projected economic developments, manpower development policies, government policies as to the level of service to be provided, and other similar factors which influence the nature and extent of participation in post-secondary education, the development of long-term enrolment projections becomes an exercise in the manipulation of figures.

It is necessary therefore to develop a monitoring capability which will enable the coordinating agency and institutions to keep close watch on enrolment trends, population growth and mobility, and demands for educational services in order that the educational needs of residents of the province may be accommodated.

RECOMMENDATION

- 60. That the coordinating agency establish a monitoring system with which to determine the effects of policy decisions regarding accessibility of services, student finance, and institutional funding; and which will serve as a predictor of student flow to, within, and from the system of Advanced Education.**

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RESOURCE ALLOCATIONS AND OPERATING COSTS

Educational planning, at some point in process, becomes synonymous with the allocation of human and physical resources for the purpose of achieving a desired future state. During the past decade, these allocative decisions generally were made on the basis of institutional demand. Institutions experiencing rapid growth were generously supported, with relatively few questions asked as to the nature and purpose of expenditures. Educational expenditures were considered to be sound investments whose returns would be evident in increases in provincial and national productivity.

However, public concerns about rising expenditures and evident inefficiencies have converged upon post-secondary education. At the same time, public demands for other publicly supported services have become increasingly insistent. This situation requires that allocative decisions for all government services be made on rational and defensible grounds. Input data in terms of needs, resources available and required, and unit costs along with both quantitative and qualitative output measures and indicators are essential ingredients for rational resource allocations.

resource allocations models

The demands being placed on government for public services coupled with cost increases disproportionate to revenue increases necessitates that a provincial planning environment be created in which the data for resource allocations are

collected, assembled and analyzed. Ultimately, this could lead to the development of a provincial simulation model for resource allocations. Such a model could serve to test the likely effects and cross impacts of proposed allocative decisions.

The post-secondary sector of government service similarly needs to create effective planning and management techniques in order that it may preserve the quality and level of services commensurate with need. One of the major tasks of the proposed Planning Review Board is to develop an effective management information system which assembles data relative to client, social, and manpower needs, enrolments, expenditures, unit costs, and system productivity.

As an initial step in developing a provincial management information system, a pilot project was undertaken to test the feasibility of adopting a simulation model as an institutional management tool. The simulation model selected was designed by the Western Interstate Commission for Higher Education (WICHE) as an analytic model to aid decision makers in evaluating current operations and in analyzing future resource allocations.

The model, known as RRPM 1.3 (Resource Requirements Prediction Model, Version 1.3) is currently being piloted in Lethbridge Community College with consultant services contracted through the University of Alberta and with computer services provided by NAIT. The project is scheduled for completion in July, 1972.

The pilot project was undertaken as a part of the Master Planning Project with a view to developing a simulation model which could be used by all post-secondary non-university institutions. By having all institutions use the same management information system, the following advantages are expected to accrue:

- ☐ Interinstitutionally comparable cost data will be available.
- ☐ A standardized accounting procedure will be possible in all institutions, or an accounting cross-over system may be developed to translate institutional accounting data to standard cost centres.
- ☐ Institutions will be able to predict the effects of allocative decisions.
- ☐ Institutional costs may be related to output indicators and output measures.
- ☐ Program budgeting will be facilitated.

RECOMMENDATION

61. That the outcome of the RRPM 1.3 pilot project be evaluated to determine the feasibility of developing or adapting a single simulation model for use by institutions on a system wide basis and for use at the provincial level as the basis for a management information system.

operating costs

The need for interinstitutionally comparable cost data was recognized early in the Master Planning Project, and a comprehensive cost analysis for the

total system of post-secondary education was proposed. However, for a variety of reasons, this cost analysis could not be conducted within the time frame adopted for the planning project. Instead, a cost analysis of the public college system was undertaken. This analysis produced a number of useful findings for participating institutions. These, along with a detailed description of the methodology used, are reported in *Master Planning Monograph #8*.

Although only a limited number of the findings can be generalized as being applicable to the total non-university system, the following expenditure patterns should be noted:

- ☐ Low enrolments tended to produce high costs in specialized courses related to career programs, technologies, sciences, and to a lesser extent second-year transfer programs.
- ☐ A high concentration of time and instructional hours tended to produce high costs in technologies, sciences, and specialized career courses.
- ☐ The social sciences, humanities, and general education courses tended to be lower in cost.
- ☐ High instructional salaries without the offsetting benefits of large enrolments and low course-time commitment tended to produce very high unit costs.
- ☐ Programs which cross-utilized courses tended to reflect significantly lower costs.
- ☐ Economies of scale began to be realized at the 2000-student enrolment level.

RECOMMENDATION

62. That, during the interim period when the system-wide use of simulation models is being investigated, a cost analysis of all institutions be undertaken using a single cost analysis model.

projected operating costs

In order to project operating costs, it was considered necessary to calculate current operating costs as a basis for projection. However, since the proposed cost analysis for the total system was not conducted, current operating costs could not be ascertained with any degree of accuracy. Although each institution could produce some type of unit cost figure, these unit costs were calculated using different methods for counting students and different criteria for including and allocating costs.

As an interim measure, gross unit cost figures for projection purposes were calculated using total

operating budgets and total full-time enrolment figures for 1971-72. This gross calculation methodology produced a range of costs from \$1,885 to \$3,385 per full-time student. Average unit costs per full-time student were calculated to be \$2,333. Gross unit costs by subsystem are reported in Table 10.

Projected system operating costs were based on minimum enrolment objectives and 1971 gross unit costs inflated at a 6 percent rate per annum. Table 11 reports the *minimum* operating funds which are projected to be required to maintain 1971 participation rates through to 1980. This gross methodology produced operating costs projections of \$66.6 millions by 1975 and \$106.4 millions by 1980. It should be noted that these costs figures are projected *total* operating costs and include provision of services to part-time students, continuing education students, and others in the same proportion relative to full-time students as these services were provided in 1971.

Table 10

EXPENDITURES, FULL-TIME ENROLMENTS, AND UNIT COSTS FOR THE POST-SECONDARY, NON-UNIVERSITY SYSTEM, 1971-72

Subsystem	Operating Budgets	Full-Time Enrolments	Unit Costs
Technical Institutes	14,639,310	6,437	2,274
Public Colleges	11,514,361 ¹	6,108	1,885
Agricultural and Vocational Colleges	2,173,171	642	3,385
Alberta Vocational Centers	2,432,846 ²	N/A	N/A ³
TOTAL	30,759,688	13,187	2,333⁴

¹This figure includes plant maintenance costs; others do not.

²This figure includes only AVC's Calgary, Edmonton, and Fort McMurray.

³Unit costs for AVC's were not calculated since most students in AVC's are classed as part-time

⁴System unit costs were calculated by dividing the full-time enrolment of 13,187 into total expenditures with AVC's included. Inclusion of maintenance costs for all sub-systems produces a system unit cost figure of \$2,650 per full-time student.

ESTIMATED MINIMUM OPERATING COSTS 1971-1980

Year	Minimum Full-Time Enrolments (000's)	Estimated Unit Cost ¹	Estimated Total Operating Expenditure ² (000,000's)
1971	13.1	2,333	30.6
1972	18.7	2,473	46.3
1973	19.8	2,621	51.9
1974	21.2	2,778	58.9
1975	22.6	2,945	66.6
1976	23.5	3,122	73.4
1977	24.3	3,309	80.4
1978	25.2	3,508	88.4
1979	26.0	3,718	96.7
1980	27.0	3,941	106.4

¹The 1971 unit cost figure of \$2,333 is used as a base and inflated at a 6 percent rate per year.

²Expenditures include costs of maintaining services to part-time students, continuing education, and other services in the same proportion relative to full-time students they were provided in 1971.

Limitations of cost projections

Although the limitations of the cost projections produced above are rather obvious, the following specific limitations should be noted:

- (1) The cost projections are based on current estimated operating costs and tend to project the effects of current management practices on the implicit assumption that the same level of efficiency or inefficiency will be maintained in future.
- (2) Unit costs per full-time student are convenient for projection purposes but tend to obscure the fact that these costs include all services rendered by the institution. Part-time students, continuing education, and a variety of other services are all blended into a single unit cost.

- (3) The six percent annual unit cost increase is not used in the normative sense, but rather as a reflection of current guidelines for cost increases.

- (4) The cost projections do not take into account possible changes in student mix. Thus, the projections assume that the proportions of students attending institutions and enrolled in various programs will not change significantly over the projection period.

Operating finance

The following recommendations propose that institutions be funded by the coordinating agency on a budget-approval basis with operating grants tied to actual student enrolments in each

institution. Requests to government by the coordinating agency for operating finance will clearly delineate costs of maintaining existing services and marginal costs of providing additional services on a subsystem basis. A two or three year cyclical budget period based on enrolment objectives is recommended as an objective in financing the system and its member institutions.

RECOMMENDATIONS

63. That all institutions be funded on a budget approval basis, and that institutional budget submissions clearly delineate operating costs for maintenance of existing services and marginal costs of providing additional services. The following information should be provided in support of budget requests:
 - (a) Projected student enrolments.
 - (b) Projected unit costs.
 - (c) Institutional productivity ratios (full-time equivalent faculty to full-time equivalent students).
 - (d) Program unit costs.
 - (e) Proposed program expenditures in order of priority.
64. That a corrective factor be applied to institutional budgets permitting the institution a plus or minus 10 percent margin in actual enrolments compared with projected enrolments and that appropriate adjustments be made to operating grants once student registrations are completed.
65. That a common reporting format and common definitions be developed for use by all institutions in budget submissions.
66. That the coordinating agency maintain a maximum limit on unit cost increases for the total system, but that the agency continue to recognize that costs will vary with each institution according to:
 - (a) Institutional size, location, and maturity.
 - (b) Scope and nature of services rendered.
 - (c) Nature and extent of physical facilities.
67. That the coordinating agency request government support for operating expenditures on the basis of the sum of approved institutional budgets with the following documentation:
 - (a) Projected student enrolments.
 - (b) Projected system unit costs.
 - (c) Estimated costs of specific new programs or missions. For example, specific missions such as serving the educational needs of the culturally and economically disadvantaged, developing a "college of the air," or retraining persons displaced by a change in industry should be funded on a mission or program basis.
68. That the coordinating agency urge government to undertake funding commitments for operational costs on a biannual basis with a view towards longer-term funding commitments.

PLANNING PROJECT REFERENCES FOR CHAPTER 9

monographs

CORNISH, D. J. and J. F. BATTY. *Resource Allocations: A Cost Analysis of Alberta Public Colleges. Master Planning Monograph #8.* EDMONTON: ALBERTA COLLEGES COMMISSION, JUNE, 1972.

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BOSETTI, R. A. "Financing Post-Secondary Education in the Province of Alberta," APRIL, 1971.

"An Operating Grant Formula: A Proposal for Discussion," JULY, 1970.

CORNISH, D. J. "Faculty Workloads: A Critical Examination," MARCH 1972.

"Report on Course Costs and Faculty Workloads in Red Deer College," APRIL, 1972.

CHAMCHUK, N. J. "Recruitment of Voluntary Contributions," MARCH, 1972.

10

A detailed survey of existing capital facilities was conducted as a part of the master planning project. The survey was designed to determine the student capacity of each post-secondary non-university institution on the basis of a single model for analysis. The findings of this study, reported in detail in *Master Planning Monograph #9*, consistently point to the need for comprehensive planning in the area of capital development.

This chapter briefly reviews the present student capacity of each institution on the basis of two types of facilities: classrooms, and laboratories. It then relates the minimum enrolment objectives developed in Chapter 8 to the student capacity of each institution. The chapter concludes with specific recommendations for future capital development.

student capacity of institutions

The model developed and used for analysis of facilities produced comparable sets of minimum and maximum capacity figures for classrooms, laboratories, libraries, offices, and gymnasiums for each post-secondary non-university institution. However, for the purpose of this plan, the capacities of only classroom and laboratory facilities are reviewed for their implications for capital development.

Classroom and seminar facilities were analyzed on the basis of two assumptions: the 100 percent assumption and the 40 percent assumption. The 100 percent assumption generated capacity figures on the assumption that all of the designated classroom space was used for instruction only and not for work space. Under this assumption the

analysis produced high minimum and maximum capacity figures. The 40 percent assumption generated capacity figures on the assumption that 40 percent of the designated classroom space was used for work space. Under this assumption the analysis produced low minimum and maximum capacity figures.

Laboratory facilities were analyzed on the assumption that 60 to 150 square feet of space were required per student station. Usage time was assumed to range from 4 to 20 hours per week. This analysis also produced a high-low minimum and maximum capacity range.

The results of this analysis are presented in Table 12 where the student capacity of each institution is compared with minimum enrolment objectives for 1975 and 1980.

The foregoing analysis suggests that all institutions will have more than adequate space to accommodate minimum enrolments. However, as has been suggested previously, full-time student counts do not reflect the total services provided by an institution nor do they accurately reflect the demand placed upon facilities. A more useful enrolment figure for determining demands upon facilities may be calculated by converting full-time enrolments to full-time equivalent enrolments.

Table 13 compares institutional capacities to full-time equivalent enrolment figures. These figures were calculated on the assumptions that for the total system, the ratio of full-time to part-time students was 2:1, and that two part-time students equalled one full-time equivalent student.

Table 12

MINIMUM FULL-TIME ENROLMENTS AND INSTITUTIONAL CAPACITIES

Institution	Minimum Enrolment Objectives			Institutional Capacity ¹			
	1971	1975	1980	Classroom		Laboratory	
				Min.	Max.	Min.	Max.
Medicine Hat College	414	400	500	677	1,804	1,335	3,550
Lethbridge Com. College	1,120	1,150	1,200	1,436	3,830	1,377	3,566
Mount Royal College ²	2,831	4,000	5,200	8,830	16,588	4,526	8,601
SAIT	2,810	4,500	5,200	10,393	29,621	3,028	11,218
Red Deer College	893	900	1,000	1,341	3,575	1,444	3,851
Olds Ag & Voc College	366	400	400	1,537	4,098	450	1,500
Grant MacEwan C.C. ³	531	5,000	6,300	5,356	10,176	2,376	4,513
NAIT	3,627	4,800	5,200	5,757	16,406	2,688	9,961
Forest Tech. School	30	100	200	—	—	—	—
Vermilion Ag & Voc	176	300	300	1,022	2,726	299	995
AVC Fort McMurray	—	300	500	460	1,227	192	511
Grande Prairie R.C.	319	500	700	515	1,351	842	2,245
Fairview Ag & Voc	100	250	300	546	1,457	231	769
TOTALS	13,100	22,600	27,000	37,870	92,859	18,788	51,280

¹The minimum and maximum are based on 100 percent of the class and seminar area being used for instruction at a rate of 15 square feet per student. No provision is made in these figures for "workspace." Addition of work space would decrease capacity by 40 percent. Where a minimum and maximum had a capacity range, the lowest minimum and highest maximum were used in this table.

²Includes AVC Calgary.

³Includes AVC Edmonton.

Table 13

MINIMUM FULL-TIME EQUIVALENT ENROLMENTS AND INSTITUTIONAL CAPACITIES

Institution	Minimum F.T.E. Enrolments ¹			Institutional Capacity			
	1971	1975	1980	Classroom		Laboratory	
				Min.	Max.	Min.	Max.
Medicine Hat College	518	500	625	677	1,804	1,335	3,550
Lethbridge Com. College	1,400	1,438	1,500	1,436	3,830	1,377	3,566
Mount Royal College ²	3,539	5,000	6,500	8,830	16,588	4,526	8,601
SAIT	3,513	5,625	6,500	10,393	29,621	3,028	11,218
Red Deer College	1,116	1,125	1,250	1,341	3,575	1,444	3,851
Olds Ag & Voc College	458	500	500	1,537	4,098	450	1,500
Grant MacEwan C.C. ³	664	6,250	7,875	5,356	10,176	2,376	4,513
NAIT	4,534	6,000	6,500	5,757	16,406	2,688	9,961
Forest Tech. School	38	125	250	—	—	—	—
Vermilion Ag & Voc	220	375	375	1,022	2,726	299	995
AVC Fort McMurray	—	375	625	460	1,227	192	511
Grande Prairie R.C.	399	625	875	515	1,351	842	2,245
Fairview Ag & Voc	125	313	375	546	1,457	231	769
TOTALS	16,524	28,251	33,750	38,870	92,859	18,788	51,280

¹Full-time equivalent enrolments were calculated on the assumption that the ratio of full-time to part-time students is 2:1 and that 2 part-time students equal one full-time equivalent student.

²Includes AVC Calgary.

³Includes AVC Edmonton.

With the exception of Mount Royal College, SAIT, Grant MacEwan, NAIT, AVC Fort McMurray, Grande Prairie College, and Fairview College, all other institutions have adequate classroom and laboratory space to accommodate minimum full-time equivalent enrolment objectives until 1980.

projected capital development

On the basis of minimum full-time equivalent enrolment objectives, capital development may be anticipated in the Calgary, Edmonton, Fort McMurray, and Grande Prairie regions. The nature and extent of capital development will depend upon the services which are to be provided, the manner in which the services will be delivered to the clientele, and the degree to which existing facilities may be utilized.

MOUNT ROYAL COLLEGE. This college could be expected to accommodate up to 5000 students in the combined Lincoln Park and Churchill Park facilities. However, additional laboratory space will be required particularly if the nature of programs offered requires a heavy concentration of laboratory time. The provision of additional laboratory space through new construction or through conversion of classrooms could increase the student capacity to 7000 students without the necessity for provision of additional classroom space.

SAIT. According to figures generated by the facilities analysis, this institute is severely limited in its student capacity by lack of laboratory facilities. Additional laboratory facilities could

readily increase the student capacity to 10,000 students without requiring additional classroom space.

GRANT MacEWAN COMMUNITY COLLEGE. The combined classroom facilities of the multi-campus and AVC Edmonton may adequately accommodate approximately 7,000 students. However, laboratory facilities can accommodate less than half that number. Growth projections for the college indicate a need for development of a health training centre and a centre for the economic and socially disadvantaged. Incorporation of AVC Edmonton into Grant MacEwan will provide some immediate space relief but this may not fulfill capital development needs for the current decade.

NAIT. The institute is similarly limited in the number of students it can accommodate by its low student capacity in laboratory facilities. While classroom facilities may accommodate approximately 10,000 students, laboratory facilities can accommodate approximately 5,000 students. Release classroom space could be converted to laboratory facilities to bring the student capacity to approximately 7,000 students for the total institution.

AVC FORT McMURRAY. Since this institution is housed in temporary facilities, the first phase of capital development should begin immediately.

The Fort McMurray region might reasonably be expected to experience substantial growth if development of the oil extraction industry proceeds as planned. Growth will likely be

centered in the Town of Fort McMurray with the present population of 7,000 growing to an estimated 25,000 people within the next ten years. The population will exhibit the transient characteristics associated with exploration and new resource development. In addition, the population may be expected to include a large proportion of Indian and Metis people.

Educational services will need to be closely tied to the manpower demands of the oil extraction industry, to the needs of related service industries and businesses, and to the needs of the population. Thus, educational services will focus upon technical-vocational training, academic upgrading, and community service occupations. Capital development will be necessary to accommodate the equivalent of approximately 500 full-time students in technical-vocational, business and administration, service trades, and vocational and upgrading programs. The region will likely require trained personnel for dragline operations, transportation, pipeline construction and maintenance, warehousing, steam engineering, custodial services, law enforcement, food services, building trades, business and administration, health and welfare services, etc. Thus capital facilities will need to accommodate technical-vocational rather than academic services.

GRANDE PRAIRIE REGIONAL COLLEGE.

Capital facilities sufficient to accommodate approximately 800 students will be available upon completion of the new college facilities. If the Fairview Agricultural and Vocational College facilities can be adapted to provide

technical-vocational program facilities for approximately 300 students, these facilities will be adequate if a minimum enrolment situation prevails for the current decade.

FOREST TECHNOLOGY SCHOOL. This institution was not included in the facilities survey. However, if this school is to be developed as a field study centre to accommodate a minimum enrolment of 200 students, then capital development beyond that currently planned by the Department of Lands and Forests will be necessary by 1975.

limitations

The foregoing discussion illustrated only the interrelationships between enrolments and the student capacities of two types of facilities — classrooms and laboratories. In order to determine total institutional capacity, it is necessary to examine the total range of facilities within an institution. For, in the final analyses, total institutional capacity is likely to be determined by the essential facility which has the lowest student capacity. Furthermore such factors as the availability of parking space, access routes to the site, and general building configuration may represent the real limits to institutional student capacity.

capital costs

While the nature and extent of capital development may be controlled to some degree through better utilization of existing facilities, by extending the instructional day, and by

reorganizing the academic term, no simple cost controls exist for capital development.

Capital expenditures can generally be considered as falling into two categories. These are: (a) Expenditures required to provide physical facilities in order to accommodate the clientele taking the program; and (b) Expenditures for replacement of equipment required to offer the programs. Institutionally, the former tends to be confined to large sums over short periods of time while the latter is more of a continuing and consistent expenditure.

The provision of physical facilities starts with the selection of a site suitable for the program to be offered by the institution, proceeds to development of the site and culminates in the construction of the actual physical plant. Insofar as the construction of physical facilities is concerned, costs will vary from year to year and capital cost estimates based upon a specific base cost support level will need to be adjusted according to a building cost index.

Institutional flexibility and possible economies can be achieved by considering leasing or the purchase of existing facilities rather than construction of new facilities. In an era of rapid technological change and rapidly shifting client needs, leased facilities have merit if the lease prices compare favourably to new construction or to the cost of purchasing existing facilities.

Equipment costs per student may vary considerably depending upon the nature of the program being offered. Generally, however, it has been found that about 10 percent of institutional

expenditures are related to capital expenditures. For system planning and to a large extent institutional planning, this figure has proved an acceptable rule of thumb for calculating capital equipment costs.

Insofar as providing additional physical facilities for college purposes in the future, this will probably be largely confined to the Fort McMurray, Grande Prairie, Edmonton, and Calgary regions. It is reasonable to assume that the need for physical facilities on a per client basis will be lower in the future since an increasing proportion of the formal program will probably be provided through advanced electronic media or in an existing practical physical work facility. Existing facilities may not have to be greatly increased to adequately meet the demand for the next decade.

Investment in equipment, however, may increase. Some of the investment — communication networks — will probably be absorbed by private and other public authorities. Coordination of total services and usage of available equipment will be critical in controlling overall capital costs.

Estimates of future capital investments should be made in cognizance of the above discussed factors with suitable adjustments to reflect the economic trends within the province.

RECOMMENDATIONS

69. That capital facilities be reviewed in terms of the information provided by the Facilities Survey with a view to increasing student capacities in Mount Royal and SAIT by provision of increased laboratory facilities.

70. That a health services training centre be planned for Grant MacEwan Community College utilizing existing health services facilities in AVC Edmonton.
71. That current capital development plans for NAIT be reviewed in terms of the Facilities Survey with a view to increasing student capacity through provision of increased laboratory facilities.
72. That capital development be planned for a 500-student technical-vocational college at Fort McMurray.
73. That new construction be based on a gross area of 200 square feet per student place where construction includes core service facilities and mechanical facilities designed to facilitate future expansion. Subsequent phases should be developed on a lower per student gross area base.
74. That the 1971 base construction cost figure of \$25.00 per square foot be adjusted annually according to the Southam Index and for regional construction cost differentials.
75. That all capital development plans be advised by a consultative-planning committee consisting of a professional educator knowledgeable in the development of physical facilities and a professional architect knowledgeable in the planning of educational facilities. This committee should aid in the translation of educational philosophy and program into space requirements and should assist in utilizing program and space requirement data in the development of plans for physical facilities.

PLANNING REPORT REFERENCES FOR CHAPTER 10

monographs

CORNISH, D. J. and M. R. FENSKE. *Capital Resources: A Survey of Existing Capital Facilities in Alberta Post-Secondary Non-University Institutions. Master Planning Monograph #9.* EDMONTON: ALBERTA COLLEGES COMMISSION, AUGUST, 1972.

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FENSKE, M. R. "Equating Construction Costs over Time and Location," JUNE, 1972.

"Lease Space—Science Building—Lethbridge Community College," MARCH, 1972. (Fenske-Cornish).

"New Construction—Leasing—Purchase of Existing Facilities," JUNE, 1972.

This chapter deals with the following problems and issues which were reviewed during the planning project:

- ☐ Student Finance.
- ☐ Student Tuition Fees.
- ☐ Transferability.
- ☐ Library Cooperation.
- ☐ Computer Services.
- ☐ Faculty-Board Relationships.
- ☐ Continuing Education and Community Services.

☐ student finance

A review of the number of agencies involved in providing student aid and of the purposes for which such aid is provided suggests a need for planning and coordination of student finance.

At least twelve government departments and agencies can be identified as providing some form of student assistance either on a regular or crisis-intervention basis. The purposes for which student assistance is provided range from grants to encourage students to undertake training in health services careers, recreation leadership, fine arts, languages, and selected technical-vocational programs to training, travel, and subsistence allowances to enable those students who are eligible for welfare assistance to upgrade their vocational skills.

In addition to the foregoing kinds of assistance, the Students' Finance Board administers a system of non-repayable allowances and repayable loans for students undertaking high school and post-secondary studies.

Federal agencies such as Canada Manpower are also involved in both the purchase of training places for students and in the provision of subsistence allowances.

RECOMMENDATIONS

76. That the coordinating agency undertake the coordination of all student aid programs to ensure that funds are available on a fair and equitable basis to Alberta residents.
77. That the Division of Student Services undertake the administration of provincially-supported student aid programs, and that this Division assume major responsibility for dissemination of information with regard to student aid which is available.
78. That student aid be regarded as one of the major means by which equality of educational opportunity may be extended to Alberta residents.

☐ student tuition fees

A cursory examination of calendars for the 1972-73 term revealed a wide range in the tuition fees levied by post-secondary institutions in the Province of Alberta, as is shown in Table 14.

Table 14

RANGE OF STUDENT TUITION FEES BY POST-SECONDARY SUBSYSTEM IN ALBERTA, 1972-73

Subsystem	Fee Range	
	Per Full-Time Student	Per Full Course
Public Colleges	110-320	30-50
Technical Institutes	40	13
Agricultural & Vocational Colleges	25-175	20-25
Universities	200-800	65-200

Reasons for the differences in tuition fees among the four major subsystems may be ascribed in part at least to the variety of authorities involved in the approval of fee levels.

The Universities Act, section 15(e), for example, delegates the responsibility for fees to the specific University's Board of Governors upon approval of the Universities Commission. A similar situation pertains in the Public Colleges. *The Colleges Act*, section 26(b), (c), also grants fee-setting authority to the College Board of Governors upon approval of the Colleges Commission.

The establishment of fees in the Technical Institutes and in the Alberta Vocational Centres formerly fell under *The Department of Education Act*. The Agricultural and Vocational College fees formerly fell under *The Agricultural Vocational Colleges Act*. With the recent formation of the Department of Advanced Education, the establishment of these fees has become the prerogative of the Minister of Advanced Education by section 5(b), (c).

Institutional autonomy provided by *The Colleges Act* and *The Universities Act* also contributes to the variety of fee structures. Even though central bodies (Commissions) must approve fee structures, the tendency has been to accept the recommendations of Boards of Governors on the assumption of institutional autonomy and the concomitant that the Boards know what is best for the institution and its clients.

The variety in fee structures is also promoted by the fact that fees do represent an independent source of income for the institutions. As a

consequence, fees could tend to change in response to the vagaries of more basic institutional funding and in response to the demand for programs and services beyond the base level of support.

Variety of fee structure is also related to the lack of adequate cost-benefit information. If tuition fees are to bear a direct relationship to the costs of offering a program, it will be necessary to determine the relationship between the future benefits of programs to students and the fee charged for that program. The establishment of cost-benefit data necessary to determine such a relationship could very easily add justification for variety as well as similarity among fees using benefit as the guiding principle for rationalization.

Another principle for fee rationalization can be found in the simple observation that different levels of educational services are being offered. That such is the case in some of the instances of variety is a foregone conclusion. However, an extension of this reasoning would also indicate that an equity principle should be applied to levels of education that are similar but are being offered in different institutions.

Technology fees, for example, in one institution should not vary appreciably from fees for the same program in another institution.

In view of the lack of cost-benefit data to allow the use of benefit as a guiding principle for fee rationalization in the post-secondary system, the most obvious principle is the one related to level of educational offerings.

RECOMMENDATION

79. That, since all institutions are publicly supported, a standard fee structure be developed on the basis of levels of education provided. Until such time as an equitable system of student finance is developed, fees should be low to provide wide access to post-secondary education opportunity.

☐ transferability

The transferability of post-secondary students from one institution to another stands as one of the major unresolved problems facing the post-secondary education system in the Province of Alberta.

Stated in its simplest terms, the problem has four basic dimensions:

- (a) How to provide for the *admission* of students who have achieved a high school equivalent standing through studies at non-university post-secondary institutions.
- (b) How to provide assurance of *advance standing* to students who have completed university-related studies at non-university post-secondary institutions.
- (c) How to ensure that the *quality of education* for which students are granted advanced standing is at least of the same standard as that provided by the receiving institution.
- (d) How to ensure that each institution may preserve its *autonomy* with regard to the content and quality of the programs which it offers and for which it awards credit.

AFFILIATION ARRANGEMENTS. The first two dimensions of the problem, admissibility and advanced standing, have been resolved in part only by affiliation arrangements negotiated on a one-to-one basis between colleges and universities. While students generally are admitted to universities on the recommendation of affiliated institutions, advanced standing is determined by the faculty and/or department of the receiving university. Such an arrangement provides little or no assurance to the student that he may transfer from a college to a university without loss of credit.

In addition to providing only a partial solution to the problem of transferability, affiliation arrangements may have serious implications for the sending institution. Although the specific content of affiliation arrangements may vary with each institution, all deny the concept of institutional autonomy and integrity by imposing a junior-senior relationship between colleges and universities. While universities have maintained that affiliation arrangements are necessary to protect their own autonomy, each arrangement imposes serious restrictions upon college autonomy by either explicitly or implicitly specifying conditions with regard to the following matters:

- (1) Qualifications of instructors and conditions of employment.
- (2) Minimum staff requirements.
- (3) Resources and facilities required.
- (4) Content and organization of curriculum.

- (5) Evaluation of students.
- (6) Organizational structure and administration of the institution.

Affiliation arrangements have long been recognized as less than ideal solutions to the transferability issue.

THE NON-UNIVERSITY SYSTEM

SOLUTION. The non-university post-secondary system addressed itself to seeking a solution to the problem of transferability of students within the non-university system. Representatives of the Agricultural and Vocational Colleges, Institutes of Technology, and Public Colleges, with the assistance of the Alberta Colleges Commission, prepared and jointly approved policies and procedures for the transfer of students within the non-university system

Essentially, these institutions adopted the philosophy that "... all of the eleven post-secondary [non-university] institutions are mature, responsible, and viable educational institutions in their own right with mutually acceptable accreditation status" and then proceeded to establish a policy statement along with procedures for its implementation.

The university system, on the other hand, has remained unwilling to adopt a transferability policy on the grounds that it wishes to preserve its autonomy with regard to the content and quality of the programs for which it awards credit.

It appears that the problem of transferability will not be resolved either by discussion or by legislation. What appears to be needed is a short-term solution subject to review and

modification following a trial period of operation.

RECOMMENDATION

80. That the statement of policy which follows be adopted as the basis for a two-year pilot project on transferability:

1. Any student who has successfully completed work in a public two-year post-secondary institution in Alberta shall be admissible to any other post-secondary institution in the Province upon the recommendation of the sending institution.

2. A student leaving an institution for purposes of transferring to another shall be advised:

(a) that program requirements may vary from one institution to another, and

(b) as to the level of advance standing for which he will be recommended to the receiving institution.

3. For the purposes of advance standing within the receiving institution, the sending institution shall maintain the right to certify that a given level of course work has been attained by the student, and recommend that the student be credited with advance standing to the level which it deems appropriate.

4. The receiving institution upon the recommendation of the sending institution has the obligation to accept the transferring student with credit for work successfully completed at the sending institution.

Adoption of this proposal will provide an immediate short-term solution to the problem of transferability. At the same time, it will provide

a basis upon which to test the hypothesis that post-secondary institutions can function in an atmosphere of mutual trust and cooperation with each honoring the other's integrity and autonomy as an educational entity.

The ultimate test of the effectiveness of this proposal will be in the degree of success of transferring students. If it is found that sending institutions are unrealistic in their expectations, then the pilot project may be terminated and another solution sought.

□ library cooperation

The proliferation of published material related to all areas of educational endeavor necessitates cooperation in the use of library resources. No university or college library can hope to acquire all of the published material which is required unless concerted efforts are made to rationalize library services throughout the post-secondary system.

RECOMMENDATION

- 81. That a standing advisory committee on coordination of library resources be established as recommended by the Steering Committee on Library Development in its April, 1971 report to the Universities Commission and the Alberta Colleges Commission.**

The establishment of such a committee will create a forum for information exchange and for discussion of solutions to the problems involved in cooperative arrangements for library use and development between and among institutions.

□ computer services

In considering such matters as the use of simulation models in resource allocations, cost analyses, modular program units, instruction in business and social sciences, and utilization of physical facilities, the need for institutional access to computer services became evident. However, the problem of access to computer services does not lie in the availability of computer capability in the province, but rather in relating the capability and time which is available in larger institutions to the computer needs of smaller institutions.

Institutional needs for student and staff information systems, comprehensive accounting systems, management information systems, and computer access for instructional purposes can be met either by purchasing or renting computers or by using strategically located, high capability computers as a central utility. Various combinations of the above alternatives are also possible.

In terms of capital costs and efficiency in utilization of existing high capability computers, it would appear that the use of institutional terminals coupled with a telecommunications network linkage could adequately fulfill the needs of larger post-secondary non-university institutions. Smaller institutions having casual needs for computer services might adequately be served through a batch-shipping arrangement.

RECOMMENDATION

- 82. That coordination of computer services to institutions be undertaken with a view to**

developing a central computer utility linked to institutions by terminals and a telecommunications network, and that where institutional service demand is insufficient to warrant terminal installation batch service arrangements be made.

faculty-board relationships

The flexibility of post-secondary institutions in meeting the educational needs of current and potential clients is increasingly being restricted by negotiated contractual agreements between faculties and boards of governors.

Apart from the fact that contractual agreements have included pay scale increases which tend to escalate unit costs and thereby restrict resource-allocation flexibility, contracts have tended to standardize work rules, to develop undifferentiated pay scales, and to extend provisions for granting of tenure. These latter developments are more seriously restrictive than is the former.

Negotiated pay scale increases coupled with negotiated workload reductions have increased unit operating costs and at the same time reduced productivity, at least in quantitative terms. No conclusive evidence is available to show resultant changes in productivity measured in qualitative terms. Thus, institutions face a continuing threat of escalating costs without being able to provide evidence of increased productivity.

Similarly, the granting of tenure, which is also a concomitant effect of affiliation agreements, tends to lock the institutions into providing services in

perpetuity disregarding changes in the educational needs of the clientele.

One of the net results of faculty-board negotiations has been to shift the relationship of the two parties from a professional-client relation to a labour-management one. Thus, two incompatibilities might be identified. First, the negotiation of standardized work rules, undifferentiated pay scales and tenure provisions is incompatible with the need for institutional flexibility. Second, the shift toward labour-management negotiation may be incompatible with the independent professional aspirations of faculty.

What appears to be needed is a new working arrangement between faculty and board which permits maximum institutional flexibility and, at the same time, enhances the individual faculty member's ability to act and serve in a professional capacity.

RECOMMENDATIONS

- 83. That faculty-board negotiations be restricted to matters concerning salaries and remuneration, and that matters relating to conditions of employment and teaching responsibilities be contracted on a 12-month or less individual contract basis.**
- 84. That the feasibility of adopting a "minimum basic salary" scale along with a "fee for service" scale be explored at the provincial level.**

□ continuing education and community services

Continuing education and community services have long been the subject of discussion, much of which has centered upon an almost scholastic attempt to differentiate between the two as being separate and distinct concepts. Rather than continue discourse as to distinctions, a more useful approach is to review briefly the kinds of services which people want and require, and to which they may not already have access.

There appears to be a social need for educational programs which offer opportunity for (a) pursuit of life-long interests, (b) professional, career, and vocational upgrading and advancement, (c) coping with the unparalleled knowledge explosion of our time, (d) identifying and resolving or attempting to resolve community problems, and (e) life enrichment. In essence, there appears to be a need for life-long educational opportunity which enables the individual to select learning experiences at a time and in a form which is convenient to him.

But education in this province and elsewhere on the continent has historically given low priority to this type of education. Post-secondary education has been geared more to meeting the needs of technology and industry and less to meeting the needs of individuals. This is not to say that Alberta provides no continuing education services. A review of services provided by any institution produces an impressive list.

The problems associated with providing continuing education and community services are twofold: (a) the variety of institutions and agencies providing services is usually so extensive as to require some form of coordination to avoid duplication and to ensure that needs are being met, and (b) some form of financial support is necessary to ensure that individuals are not denied access to these opportunities because of high tuition costs.

RECOMMENDATIONS

85. **That all institutions receive encouragement and financial support in providing continuing education services.**
86. **That regional councils, composed of representatives of institutions providing continuing education services, be developed to identify needs and to coordinate services.**
87. **That for post-audit purposes institutions be required to maintain a record of each course or program offered. This record should include the following minimum data:**
 - (1) Nature and purpose of program.
 - (2) Dates offered.
 - (3) Enrolments (initial/completed).
 - (4) Instructional cost.
 - (5) Material cost.
 - (6) Fee revenue.

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Continuous master planning is the single most important function which can be performed by a coordinating agency. It should form the foundation upon which policies and operational guidelines are developed. Continuous master planning can ensure adequate accessibility, opportunity, and supply of educational services to meet the ever changing needs of society, manpower, and individuals by providing for the orderly growth, development, and operation of all levels of the post-secondary system.

Unfortunately, continuous master planning is a function more honored in word than in deed. Coordinating agencies have found master planning extremely difficult and often politically dangerous. With few exceptions, such agencies have been caught in a dilemma. Lacking a master plan from which to operate, these agencies have found their time and resources consumed by such activities as program approvals, resource allocations, and the day-to-day administrative problems emanating from these activities. In effect, the lack of a master plan created the very problems which diverted their "time and energy" away from continuous master planning.

Recognizing the unfulfilled need for planning, governments have periodically created special-purpose commissions charged with the task of long range planning. These commissions have performed a very useful planning function by identifying major problems, establishing long term system goals, and by establishing basic philosophic positions.

But these periodic master plans are only one of a kind needed; for, by their very nature, they may quickly become outmoded unless provision is made for continuous correction and review in terms of the changes taking place both in society and in the educational process.

organization for effective planning

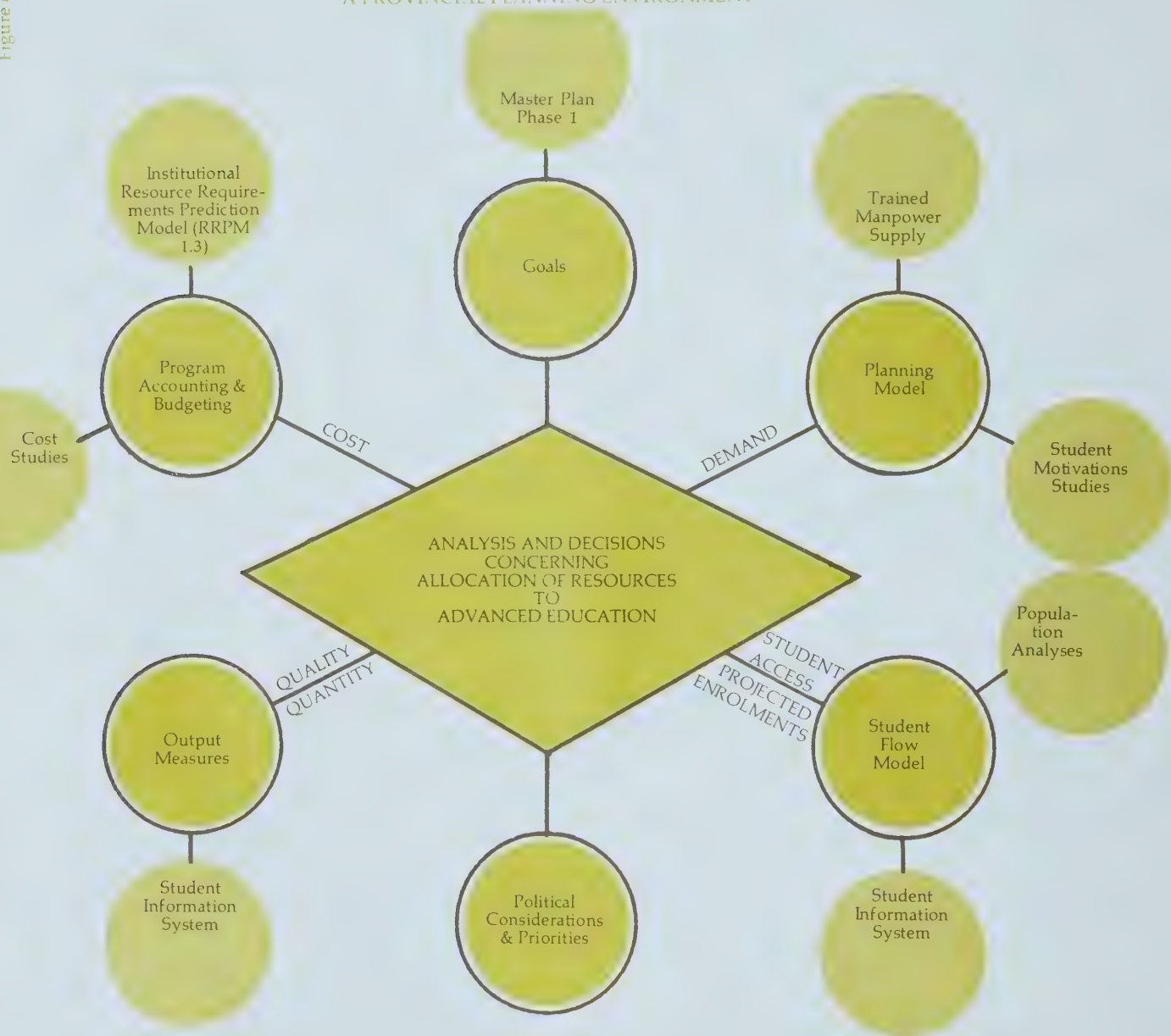
Reference to the proposed organizational structure model outlined in Chapter 4 indicates that continuous planning has been proposed as the major role of the Planning Review Board. By placing the planning function within the Board framework, the model ensures that continuous master planning will occur. By having the Board responsible for but not directly involved in administration, the model ensures that the Board will not be caught up in administrative detail. At the same time, the fact that the Board has been given authority to implement plans ensures that plans will not be shelved or circumvented.

a provincial planning environment

One of the major prerequisites for effective planning, apart from organizational and personnel considerations, is a comparable and consistent data base. No such data base exists for the Province of Alberta. Reference to numerical reports of enrolments in this plan alone will serve to indicate the need for comparability and consistency. Throughout the planning project, the lack of consistent and comparable data posed a serious and often seemingly insurmountable problem.

Figure 6

A PROVINCIAL PLANNING ENVIRONMENT



NOTE:—Light circles indicate activities which are either ongoing or which have been concluded as a part of the master planning project.
—Dark circles indicate objectives toward which activities were directed.

As an initial step towards the development of a cyclical and continuous planning capability, a planning model was developed to identify the basic data elements required for planning and to show their interrelationships. Data sources were organized to generate basic data required for establishing goals and priorities, identifying needs, predicting student flow, ascertaining service costs, and monitoring system outputs.

The provincial planning environment which was envisioned as the outgrowth of this planning project is conceptualized in Figure 6.

Reference to Figure 6 will indicate that five basic categories of data are required for effective continuous master planning. Comparable and consistent data are necessary relative to social and manpower demands for services. At the same time, data are required as to population characteristics, student flow to, within, and from the education system, and as to the degree of access to the services which are provided to Alberta residents. In order that allocative decisions might be made on a rational basis, comparable and consistent cost data are required. Finally, in order that all of the foregoing data elements may be interrelated, both quantitative and qualitative output measures and indicators must be developed.

Data for the planning project relative to social demands for services were acquired through a comprehensive student motivations study described in Chapter 5 as well as through futures forecasts. In order that master planning may

function on a continuous basis, motivations studies should be extended to include the total population. Futures forecasts and social need indicators should be produced on a regular basis.

Manpower demands for services were found to be extremely difficult to ascertain because of the lack of consistent and comparable information. Data relative to manpower demands were collected from a wide variety of sources and interpreted at a very high level of generality. If manpower demands are to continue to form a basis for educational planning, then the manpower planning model developed in Chapter 5 or a more appropriate one will need to be made operative.

Population analyses and enrolment predictions were prepared to accommodate a variety of developments and to identify the implications of alternative policy decisions. This kind of activity must be maintained as an integral part of the planning function. These analyses coupled with a student information system will serve as the basis for developing a student flow model to serve the following purposes:

- (a) To monitor the educational services being provided.
- (b) To predict the flow of students to, within, and from the post-secondary system.
- (c) To evaluate the impact of policy decisions relative to accessibility of services, student finance, and institutional funding.
- (d) To provide enrolment data input to institutional simulation models.

Comparable and consistent cost data were found to be extremely difficult to obtain for the reasons outlined in Chapter 9. Consequently, a cost analysis was undertaken both to ascertain unit operating costs in colleges and to develop a cost analysis methodology. If resource allocations decisions are to be made on rational and defensible grounds, then cost analyses which generate comparable data must be conducted. These costs will form the basis for program accounting and budgeting. At the same time, the use of simulation models as institutional management tools will form the data base for development of a provincial cost-estimation simulation model.

Output measures were similarly difficult to obtain. Institutional reports focused on inputs in terms of enrolments, costs, and programs but rarely provided data relative to the numbers of graduates produced. In cooperation with Statistics Canada, a student information system was adopted as an initial data collection mechanism for securing input-output data. However, once a provincial information system is operative, it may be more appropriate and efficient to collect all data, including relevant sector and institutional reports, on a provincial basis. Information required by Statistics Canada on a national basis can then be supplied from the provincial system.

In order to avoid unnecessary duplication of statistical effort, it is imperative that further development of the Provincial Student Information System be planned to complement

rather than duplicate the efforts of the Education Division of Statistics Canada. It should be noted that:

The present goals of the Educational Division of Statistics Canada include the creation of an Educational Resources Inventory. This is nothing short of a Canada-wide system of education statistics covering all provinces, all levels and all types of education. Data will cover students, teachers, finance and facilities, and comparisons within level and type of education should be meaningful. This, very briefly, is what Statistics Canada means by an integrated system of educational statistics.

The principal sub-systems will be files on students, teachers, finance, and facilities for each of the major types of educational institutions: elementary-secondary schools, post-secondary non-university institutions, and degree-granting institutions.

The Community College Student Information System (CCSIS) is conceived as a data base that will provide a Canada-wide system of college enrolment statistics. The data elements include items of educational and academic interest and a wide range of personal characteristics of individual students. The cross-tabulations of personal and educational characteristics of students should provide the basis for a meaningful approach to education and social planning.

Apart from the core of common data items to be collected for all non-degree granting institutions in Canada, provision has been made for inclusion of items of provincial and/or regional interest. Several fields are reserved for this purpose and their content has been determined after appropriate consultation with the provincial and regional authorities.

In essence, the master planning project has organized many of the basic data elements required for effective planning. Recommendations (8, 13, 22, 29, 39, 60, 61, 62) posed in previous chapters, if adopted, will ensure the maintenance of the data input flow. The recommendations which follow are directed toward further developing and maintaining a provincial planning environment in which continuous master planning may be undertaken.

RECOMMENDATIONS

88. That a continuous planning capability be developed to ensure that adopted master plans are constantly revised on the basis of new and more specific information.
89. That the provincial planning environment as described be further developed and maintained.
90. That the Community College Student Information System (CCSIS), developed in cooperation with Statistics Canada, be used as an initial collection mechanism and data source by requesting that all participating institutions authorize Statistics Canada to release all raw data collected to the Data and Statistical Services Branch.
91. That a provincial Student Information System be developed by the Data and Statistical Services Branch to provide data relative to potential student pools, participation, output of graduates, and placement of graduates, and that these statistical data be assembled and

analyzed to provide the historical data necessary to develop a student flow model.

92. That an inventory of capital facilities be developed and maintained for the total post-secondary system.
93. That immediate action be taken to develop a comprehensive master plan for the university sector of the Alberta system of Advanced Education.

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